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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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LATE RIVER AND HARBOR IMPROVEMENTS.

The new channel through the reef abreast Sailors' Encampment is almost completed, and will be 300 feet wide and twenty-one feet deep.

The shoal above Cherry street bridge, Toledo, has been dredged 400 feet wide to a depth of eighteen feet. The depth of the new straight channel from Maumee River to deep water of Lake Erie is seventeen feet or more for a width of 200 feet. The outer portion will be dredged to a width of 300 feet.

The channel between the piers in Black River at Lorain and through the bar, was dredged 150 feet wide to a depth of nineteen feet at mean lake level in 1896.

The channel over the bar at the entrance to Sandusky harbor is from 75 to 200 feet wide, and varies in depth from fifteen to eighteen feet.

In January, 1897, the east breakwater at Cleveland had been completed for a distance of 2,500 feet; the depth of the opening between the east and west breakwaters was twenty feet. The channel from the breakwaters to the pier entrance was redredged during the season of 1896 to a depth of nineteen feet for a width of 150 feet. Between the piers there is generally a 17-foot channel from 50 to 100 feet wide, shoaling on either side to fourteen or fifteen feet. The entrance to the west anchorage basin has shoaled to a depth of 16½ feet.

At the mouth of the Grand River, Fairport, a dangerous bar works across the entrance opposite the piers from the westward, with crest about 150 feet from end of the west pier, and sometimes has less than eleven feet of water over it. There is an outer bar at a distance of 1,000 to 1,500 feet from the pier ends, and sometimes has

less than thirteen feet on its crest. Both bars were dredged to a depth of eighteen feet in 1896.

The width of the channel at Ashtabula, from entrance between piers to L. S. & M. S. railroad canal is 213 feet, and 160 feet from the latter place inward. Channel from between piers to drawbridge has been excavated to a depth of twenty feet at mean lake level, except an area 400 feet long by 50 feet wide at inner end of west pier; minimum width of the channel is 100 feet.

The outer and inner channels of Erie harbor were dredged to a depth of eighteen feet at mean lake level in 1896, and to a width of 300 feet throughout their lengths except across the inner bar at buoys Nos. 3 and 4, where the width is only 250 feet.

A temporary crib, known as crib No. 1, was sunk in the approach to Cleveland, on May 27. The crib is located N. by E. seven-eighths E. (N. 20 degrees 30 minutes E.) from Cleveland west breakwater (E. end) lighthouse and at a distance of 11,000 feet. At night a single lantern light, white, will be displayed on the crib for the present.

A Canadian government dredge began the removal of several shoals at the entrance to Port Colborne harbor, on May 15, and will continue dredging until the contemplated improvements are completed. Mariners are requested to give the dredge boat a good berth, also to slow down in passing her, so that dredging operations may not be interrupted.

The channel through the bar in the St. Clair River below the mouth of Black River, in front of the Port Huron wharves, has shoaled to a depth of 14 feet.

The improved channel through the bar at the mouth of Detroit River is nearly completed. The cut is 800 feet wide and will be 21 feet deep at mean stage of water. Available depth at the present stage of water is about 18½ feet.

BREAKWATER EXTENSIONS.

The Secretary of War has sent to the House a report of a survey of Buffalo entrance to Erie Basin and Black Rock harbor, N. Y. It is recommended that a breakwater be constructed as a protection against storm and sea. The estimated cost is \$248,000.

In submitting the report of Maj. Symons of the Corps of Engineers, U. S. Army, in charge of the district, with headquarters at Buffalo, upon the proposed improvements to the entrance of the Buffalo Harbor, Maj. John M. Wilson, chief of the Bureau of Engineers, transmitted to the Secretary of War a letter dated May 18, 1897. Maj. Symons says:

"The plan of improvement submitted contemplates the construction of a breakwater 2,300 feet in length, consisting of a timber curb filled with stone and surmounted with a concrete and stone superstructure, to be located as shown upon the map.

"In the opinion of Maj. Symons, this design of breakwater is the best suited and the most economical for the purpose proposed. To provide, however, for any change in the type of the structure which might be desirable at the time of beginning construction, he presents four alternate designs for a breakwater, whose relative merits are recited in the report."

VESSELS CLASSED.

We note that the following vessels have been classed or rated during the last week by the American Shipmasters' Association in the Record of American and Foreign Shipping: American schooner Alice Curtis, barkentine Anita Berwind, British half-brig Edward D. Swedish bark Augusta and Swedish three-masted schooner Ornen.

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PLAYING AT DRY-DOCK BUILDING.

A special order was adopted in the House, Monday, providing for the consideration of a bill appropriating \$100,000 for the repair of dry dock No. 3, at the New York Navy Yard.

Mr. Henderson explained the necessity for the appropriation, saying that leaks had appeared which threaten the collapse of the dock. Immediate measures to repair the damage, he said, were necessary. He read a letter from the Secretary of the Navy in support of that statement. The water flowing from dock No. 3 into dock No. 2 threatened it also. In answer to an inquiry by Mr. Sayers, Mr. Henderson said that dock No. 3 had been completed within the last year. The injury probably had been done by powerful dredging machinery or by the prows of vessels. The accident, he said, should not be made the basis for adverse criticism of the construction of the dock.

Mr. Cummings said this dock was the only dock on the Atlantic coast where a large battle ship could be repaired. He thought the trouble had its origin in the fact that it was built of timber instead of stone. Mr. Cannon believed that some one was in fault, either the contractor or the supervising officers. The responsibility for the leak should be fixed. The resolution, however, was almost unanimously adopted.

SALVAGE SERVICES.

As an indication of how salvage services are apportioned by the English courts, we quote the following two recent cases:

"The steamer Gulf of Bothnia, one of the Gulf Line, broke down off the coast of Portugal on November 17. She was bound from Australia to London with a general cargo and frozen mutton. The Aeolus, of West Hartlepool, seeing her signals, offered assistance, and it was accepted on the 'no cure, no pay' principle, the disabled steamer to be towed into Cascais Bay. This service was duly performed with considerable difficulty, and after two hawsers had parted. The Admiralty Court have awarded, therefore, a sum of £1,250—owners, £940; master, £110; and crew, £200.—The same court have awarded to the owners of the Texan (West Indian and Pacific Co.), £1,690; to her captain, £190; and to her crew, £370, for salvage services rendered to the Liverpool steamer Indralema in mid-Atlantic in January last."

IRON AND STEEL INDUSTRIES.

James M. Swank, general manager of the American Iron and Steel Association, has issued his annual report for 1896. The report contains complete statistics of the iron and steel industries of the United States for 1896 and a review of their present condition; also statistics of the iron and steel industries of foreign countries in past years.

In 1896 the United States made 8,623,127 tons of pig iron, 3,919,906 tons of Bessemer steel ingots, 1,208,700 tons of open hearth steel and 5,281,689 tons of steel of all kinds and rolled in all 5,515,841 tons of finished iron and steel including rails. There were also shipped in the same year 8,916,035 gross tons of Lake Superior iron ore and 5,411,602 net tons of Connellsville coke.

These figures all show material decrease as compared with the corresponding items of production in 1895.

The foreign value of all the iron and steel manufactures imported into the United States in 1896 was \$19,506,587, a decrease of \$6,265,549. The exports of iron and steel from the United States for the same period amounted to \$48,670,218, an increase of \$13,598,655.

THE MARINE RECORD.

NEWS AROUND THE LAKES.

DETROIT.

Special Correspondence to the Marine Record.

The steamer Folsom with schooners Mary Mitchell and Nelson have been fitted out this week after laying here all winter and up till even past mid-summer.

The tug Wells was run into and sunk at Ballard's Reef Monday night by the steamer Monahansett. The crew of the tug arrived here on the Monahansett. Fireman Walsh was badly scalded by the breaking of a steam pipe on the tug.

River pirates stole the poles and sounding lines of the revenue cutter Fessenden; the sails from a yacht at Windsor; a lubricator and injector from the tug Home Rule at Amherstburg, and a yacht and two sets of sails at Bois Blanc Island. The yacht was recovered.

The funeral of Edward Guy, late chief engineer of the Mitchell Transportation Co., was held at Marine City on Sunday, under the auspices of the Masonic fraternity. Mr. Guy was only thirty-five years old, and leaves a host of friends. The steamer Lagonda, of which Mr. Guy has been engineer ever since she was built, brought a fine floral tribute from her owners at Cleveland.

That ubiquitous passenger agent of the D. & C. Line is out again with an advertising pamphlet holding in his hand the five large side-wheel passenger steamers of the company's fleet, making their season announcements for passenger traffic on and after June 16th. A. A. Schantz is nothing if not original in his advertising devices which are nearly always appropriate.

This is the time table of the new double daily service of the D. & C. line between Detroit and Cleveland: Leave Cleveland daily at 10:15 p. m.; arrive Detroit daily, 5:30 a. m. Leave Cleveland daily, except Sunday, 9:30 a. m.; arrive Detroit daily, except Sunday, 4:30 p. m. Leave Detroit daily, 11 p. m.; arrive Cleveland daily, 5:30 a. m. Leave Detroit daily, except Sunday, 9:30 a. m.; arrive Cleveland daily, except Sunday, 4:30 p. m.

The navy department is said to be preparing to send an officer to the lake cities for the purpose of enlisting sailors in order to infuse some western blood into the navy. The inducements to be held out will be such as will doubtless be acceptable to a large number, and their experience is expected to stimulate enthusiasm for the flag so that in case of actual hostilities no trouble will be met in securing several thousand experienced men from that source.

Megaphones are coming into use on the river. This sound-carrier more than takes the place of the old-fashioned speaking trumpet always provided in a ship's equipment for ocean service. What a convenient snap the old sailing ships of years ago would have had with a machine of this sort; they then could have kept a civil and safe distance from each other and bellowed away to their hearts' content instead of using the clumsy slow going code flags. Some of the speaking trumpets were pretty good old bugles, too, but ten of them lashed together would be nowhere with the megaphone. It is well named "a great sounder."

The steamer Douglass has been libeled in the United States court at Toledo by the Second National bank of Sandusky. The amount involved aggregates \$16,274.68. The plaintiff claims that the above amount was given on the boat as a mortgage and a couple of notes. The payment of the two notes was defaulted as was the interest. The receiver of the libel also filed a petition asking that the proof of all accounts be made to the satisfaction of the court and in the event that the boat was sold the balance of the money over the purchase price be turned over to him as the receiver of the libels.

The secretary of the navy has signed an order instructing Lieutenant Commander Richard Rush, of the United States steamer Michigan, to report at Detroit, July 10, to take the Michigan naval reserve out for their annual cruise. According to the instructions issued by the department the warship will be at the service of the Detroit militia from July 10 to 18, but this is as much time as can be devoted to the naval reserves, and it will be necessary for the battalions at Saginaw and Bay City, the latter of which has recently been recognized by the department, to arrange with the Detroit contingent either to take part in the cruise with them or to divide the time in some manner acceptable to all parties.

CHICAGO.

Special Correspondence to The Marine Record.

The steamer H. W. Williams was in dock for repairs and ironing.

Capt. John Prindeville chartered the steamer Oscar T. Flint for wheat to Sandusky at 1 1/8 cents.

The whaleback excursion steamer Christopher Columbus is expected to arrive here and commence running daily excursions to Milwaukee and back on Saturday.

The Independent Tug line's new tug Rita McDonald arrived here on the afternoon of the 16th inst. She proved herself an excellent sea boat on her way up from Bay City.

H. W. Cook & Co. chartered the steamer Aztec and consort Zapotec for lumber, Ashland to Chicago, at \$1.50 per M. feet, the steamer W. H. Wolf for clipped oats to Buffalo at 1 cent.

W. I. Babcock, manager of the Chicago Shipbuilding Co. left here on Sunday for New York, to leave on the

steamer St. Louis Wednesday for England to attend the congress of naval architects of the world.

The many friends of harbor master, John Roberts, are glad to see him around again, although on crutches, and to know that he is recovering from the serious accident which happened to him on the 3rd instant, through being knocked down and seriously injured by a runaway horse.

Capt. James Ferguson celebrated his 65th birthday last Wednesday by going back to work for Tom Sullivan, the well known Rush street vessel supply man. Captain Jimmie is as active as the majority of men one-half his age, and is found around at all hours looking for orders.

At the Chicago Shipbuilding Co.'s shipyard the schooner Churchill was in dock for bottom calking. The steamer Ira H. Owen received some repairs. They are having the foundation laid of their new machine in which they will erect the engines for the steamers built in future at their shipyard.

The steamer E. A. Shores has received part new garboard strakes, a piece of plank in the bilge, new rudder and bottom calking, at Milwaukee this week, and the schooner Annie O. Hanson went on the sectional dock for calking. A new mainmast is being put in the schooner Challenge.

Word has been received here that the schooner Sunshine, up-bound with sandstone, struck the rocks at the light crib at the Encampment in the Soo river, and went on the bottom at the same place that the Andrew Carnegie was aground recently. She is lying on her side and her cabins are full of water.

Capt. J. S. Dunham is doing all that he possibly can to have the crowns of the tunnels crossing the river here, lowered several feet, as yet it is rather difficult to learn who is to meet the expense of the improvement, but that a better draft of water will soon be brought about is a foregone conclusion. It is estimated that the lowering of each tunnel will cost in the neighborhood of \$750,000, but even at this sum the prominent shippers and vesselmen of Chicago are not appalled.

BUFFALO.

Special Correspondence to the Marine Record.

The steamer City of Paris arrived here on Monday with her cabin and contents burned up. She took fire apparently from the galley while in mid-lake, and was saved with difficulty by good fire fighting, the flames being confined to the cabin. Repairs are being made here. The loss is covered by insurance.

The new jack-knife bridge across the creek at Michigan street, is finished, and opened for business Wednesday. This will afford a much better passage for vessels than the old structure. As soon as the temporary bridge is removed, vessels can go through the draw two abreast, if ever it is found necessary to do so.

Owing to shoal water and a foul bottom it has been found difficult for the large vessels to reach the Raymond Elevator here. The cut-rate made by the Raymond is no doubt an excellent means of breaking into the Elevator ring, but it would be still better if good facilities were offered for getting there, and a rapid means of discharging, when alongside.

The Northern Steamship Co. opened the season this week. Capt. G. A. Miner begins his second season as commander of the North West, and the North Land is in charge of Captain W. C. Brown. On the former ship the purser is Mr. E. H. Langrell, and this is also his second season on this steamer. The purser of the North Land is Mr. H. U. Kibbie, who comes to the Northern Steamship Co. from the American line of trans-Atlantic trade, just to see what it seems like to sail on fresh water. The managers of the line are much gratified over the opening of the season, and think that the summer will be one of the best yet in their business. General Passenger Agent I. M. Bortle, has a booklet describing the trip, which he will send to anyone who wants to read about one of the loveliest trips to be taken in the whole world, and of what the title of the book describes as "seven halcyon days of blessed rest."

CLEVELAND.

Special Correspondence to The Marine Record.

Capt. Charles P. Hahn has been appointed master of the steamer Waverly.

J. S. Ellis has qualified as master of the schooner M. S. Bacon this week, and W. W. Collins has taken charge of the steamer Leland.

A survey was held this week on the engines of the steamer Cormorant and repairs are now being carried out by the Globe Iron Works Co.

The steamer Preston was docked in the Cleveland Dry Dock for a general overhauling and has been given a new propeller wheel. She will be floated out on Friday morning.

Capt. W. C. Boys, former lake captain, who has for a number of years been janitor of the Kentucky street school, was adjudged insane at a private examination before Judge White, of the Probate Court, on Monday.

The Ship Owners' Dry Dock Co. have been fairly busy this week having docked the steamers Barnum to stop a leak, the Flower for inspection purposes, and the V. H. Ketcham for repairs to stern bearings and to stop a leak.

Although a report was sent out last week that the Florida-Roby Collision case would be promptly and amicably settled, such is not the appearance of the case to-

day, at least not from this end of the line, and the case is likely to be carried into the courts for final settlement.

The sad loss experienced by Capt. John Mitchell in the loss of his eldest son has called forth the sincere condolences of a large number of friends in shipping and commercial circles. It is hoped that Capt. John will bear up as manfully as possible under this severe and trying ordeal which he is called upon to go through.

Capt. James Corrigan's new schooner Amazon made another cargo record yesterday on her first trip, she carried 217,000 bushels of corn from Chicago to Buffalo and yesterday she loaded 5,276 gross tons, or 5,917 net tons, of ore at Duluth, which is the record on Lake Superior. The Amazon will bring her big cargo to this port.

Mr. A. Osier, of Bay City, representing Messrs. De Grauw, Aymar & Co., cordage and vessel supply dealers of New York, was in Cleveland on Saturday, in the interests of his firm. It was pleasant news to hear that Mr. Osier had closed up some business and also that he thought trade was beginning to pick up again. De Grauw, Aymar & Co. are sole agents in the United States for the favorably-known Tyzack's stockless anchors.

Col. Smith, Corps of Engineers, U. S. Army, has about got tired it seems of protesting against the city depositing mud in the harbor and then requiring the government to dredge it out. In making land on the lake front the city has dumped thousands of tons of loose stuff and when any ripple of a sea gets up a large portion of this is carried away and deposited in the fairway or approach to the port. A temporary enclosure at least ought to have been made so as to protect the area which has to be filled in and this, too, before a ton of stuff was dumped. This will now probably be done as the Colonel seems in no mood to stand longer dallying with in his duty regarding the conservancy and improvement of the harbor at this port.

The friends of Capt. Richardson, deputy collector of customs at Ashtabula, are circulating a petition requesting that he be retained in his present office for another term. The Ashtabula Beacon says: "Capt. Richardson is an excellent officer, accommodating, courteous and a person with whom it is pleasant to do business, discharging his duties in a prompt and faithful manner. For these and other reasons it is asked that Capt. Richardson be retained in his present office." As the collector holds his position by virtue of the civil service law, it is not likely that any change will be made, notwithstanding this, it is most agreeable to see the captain held in such high repute as there are a large number of signatures to the petition for his retention.

FLOTSAM, JETSAM AND LAGAN.

Grant Grummond has again lowered his fare between Detroit and Cleveland, this time to 25 cents. The D. & C. officials also goes on the 25-cent basis.

Assistant Secretary of the Treasury Spaulding has cut down the \$50 fine imposed on the Thompson Towing & Wrecking Co., of Port Huron, for violation of the navigation laws, regarding taking out a license, to \$10, as it was an oversight.

Capt. Thomas Cowan died at Port Huron on Thursday last, of consumption. He had sailed the lakes thirty-six years and commanded the Ogemaw, Samuel Marshall and Alec Anderson. His age was 57 years. Two married daughters survive him.

The damage to the crib under Portage Lake bridge, caused by the steamer Fiske in May, proves much greater than was anticipated, and is being repaired as rapidly as possible. The entire timber work above the water line as well as many piles must be replaced and the owner of the Fiske will have to settle.

Tom—He's some furrin nobleman a-travelin' incognito.

Dick—What's that?

Tom—It's when a man changes hisself into what he ain't an' expec's every one to know him as he isn't.—Boston Herald.

Collector Olund, of Duluth, Monday fined the Bessemer steamer Stephenson \$10 for not having her name on the pilot house, and the Simon Langell was fined a similar amount for not having her name on the starboard bow. The tug Nellie Cotton was fined \$50 for neglect to surrender her papers at their expiration.

Capt. Robinson, of the four-masted schooner Charles A. Campbell, has been master of a vessel during the past sixty-five years, and now, at the age of 84 years, he is still at the helm. He says that when he gets to be an old man he will give up the sea and settle down on his farm at Machiasport, Me.—Boston Herald.

A sleeper is one who sleeps. A sleeper is that in which the sleeper sleeps. A sleeper is that on which runs the sleeper which carries the sleeper while he sleeps. Therefore, while the sleeper sleeps in the sleeper, the sleeper carries the sleeper over the sleeper under the sleeper, until the sleeper which carries the sleeper jumps off the sleeper and wakes the sleeper in the sleeper by striking the sleeper under the sleeper, and there is no longer any sleeper sleeping in the sleeper on the sleeper.—San Diego Union.

Capt. Frank Trudeau died on Tuesday morning at his home in Bay City. He was born at Quebec in 1817, and moved to Michigan with his children in 1852, being among the first white men to settle at Bay City. He cleared the land and erected his home with his own hands, after which he aided in the construction of the schooner Essex, of which he became owner. The Essex was one of the

first boats to leave that port. Capt. Trudo was one of the oldest captains on the lakes, having spent nearly forty-five years on Lake Huron, nearly all of which time he commanded his own vessels. He was well and favorably known throughout the entire state. The last ten years of his busy life were spent at home owing to his feeble health and advanced age. The deceased was the father of nineteen children, thirteen of whom survive him.

In tracing out the career of the old ship Vanderbilt, the American Shipbuilder says that she is ending her days as a coal hulk. She was sold, just as if she had not been the personal property of the martyred President, for \$42,000, to the Cummings brothers. They changed her name to the Three Brothers, took out all her machinery, which they sold for more than they had paid for the entire vessel, and made a sailing ship of her. She was loaded with grain, and of all the swift ships that in those days lay in San Francisco bay there was not one that could keep pace with her to European ports. She made many trips, and at last was sold to the British government to which she still belongs, and Com. Vanderbilt's million-dollar gift to President Lincoln is ending her varied career under the Union Jack as a coal hulk at Malta.

The steel stern frame and brackets for the new White Star liner are the largest ever produced in England. The stern frame is in one piece, and as a casting weighs 41 tons, and when completely machined and ready for erection will weigh 35 tons. Its height is 53 feet by 24 feet 3 inches over the keel piece, the section of the post being 21 inches by 11 inches. Attached to this frame are the after brackets, a huge casting also in one piece, which will weigh 55 tons as it leaves the foundry, and 45 tons when machined and erected in position. The height of the flanged portion of the bracket—that which is attached to the frame of the ship—is 26 feet, whilst the width from center to center of the bosses is 23 feet, the bosses themselves being 4 feet 3 inches in diameter, by 5 feet 7 inches deep. The forward brackets, which are entirely built within the plating of the vessel, will weigh 30 tons when machined and erected.

As evidence of the longevity of iron ships we take from the Shipping World, London, the following: "I see, in the latest shipping register, the statement that the steamer Zingari has been 'sold for breaking up,' and is thus removed from the register. The Zingari was one of the earliest iron steamships built on the Tyne, by the old firm of the Smiths. She dates back to 1854. She was owned for some time by the West Hartlepool Steam Navigation Co.; then, after a few years, I found her hailing under the Tyne Steam Shipping Co.'s flag; then she became a coasting collier, and now at the age of 43, after good service, she is to be 'broken up.' They used good iron and built good steamers in the early days of iron shipbuilding in the north." This, too, in the salt water trade where iron is subject to such great corrosion unless thoroughly protected from the action of sea water. From the above showing it will be a handful of decades yet before any lake built iron or steel vessels engaged in the domestic trade will be broken up on account of their earing out.

PEARY'S POLAR EXPEDITION.

Lieut. Peary, who has received five years' leave of absence from the navy department, in an interview outlined his plans for his proposed Arctic expedition. On July 8 he will start north on the preliminary journey, the sole object of which will be to make arrangements for the final trip, which will begin in July, 1898. Lieut. Peary will first pick out a ship for the preliminary voyage. He will select one of the St. John's sealers and have it ready to leave Boston between July 5 and July 8. At Boston the sealer will take on board a store of supplies. Lieut. Peary will be accompanied by two or more scientific parties, which will go north with him to some point near Melville Bay. One of the parties will be conducted by Prof. C. H. Barton, of the Massachusetts Institute of Technology. Another will be led by Prof. C. H. Hitchcock, of Dartmouth, and a number of Yale scientists will probably organize a third party. These scientists will work independently of Lieut. Peary and will simply be passengers with him. The results of their studies will in no way concern his affairs.

Lieut. Peary's object in his preliminary trip will be to communicate with a colony of Eskimos at Whale Sound, who are known as the Arctic Highlanders. Mr. Peary has lived with these people and gained their entire confidence and affection. When he left Whale Sound, he says, he was acquainted with every man, woman and child in the colony. He has the utmost confidence in the people, and he says they will do anything for him within their power. He will pick out six or eight of the most intelligent young men in the colony and prepare them to take their families north with them and establish another colony which a year later will be his base of supplies. At this village, which they will find, they will work throughout the year collecting meat, furs, bearskins to be made into boots, sledges and other supplies and collecting and

training a pack of the best Eskimo dogs obtainable. Lieut. Peary says he could utilize the entire tribe in his work if it were necessary. He will have his men arrange affairs so that when he sees them in the summer of '98 they will be ready to move north with him at a day's notice.

Lieut. Peary will be accompanied on this summer's trip by his wife and his three-year-old daughter, but on the main expedition Mrs. Peary and the child will remain in this country. The journey this summer will be from Boston to Sidney, then to Cape Breton, where the ship will take on coal, through the Gulf of St. Lawrence to Belle Isle, and up the Labrador coast to the mouth of Hudson's Strait, then to Resolution Island and across to the south Greenland coast to Melville Bay, and, finally, to Whale Sound, which will be reached in the latter part of July. The return will be made in September. Lieut. Peary is enthusiastic over the plans of his trip, and is looking forward to his five years' work with the greatest pleasure.

TO TEST MODELS.

The experimental tank to be built at the Washington Navy Yard will be the largest of its kind in the country, and the largest under cover. Its dimensions closely approach those of the big dry docks, and the depth will be great enough to float any of the smaller cruisers. It will be covered on all sides, and the water supplied from the Potomac or the Washington reservoir. The tank is to be 500 feet long and 50 feet wide. Inside, the water space will be 475 by 43 feet, with a depth of 14 feet. Running across, close to the water, will be a carriage, upon which there will be attached a dynamometer to register the resistance due to towing a model through the basin. Models, varying in length from 10 to 20 feet, of every new ship to be built will be attached to this machinery and drawn through the water. The wave motion will be observed, and the resistance it offers will be taken account of. The models will be of plain design, being constructed simply to represent closely the actual lines of the ship it is proposed to build. Through these experiments it is believed that the plans of the proposed vessels can be improved and valuable advance information obtained for utilization in the general work of construction.

LAKE FREIGHT REPORT.

Although there is but a slight improvement in the rate of freight quoted there has been a decided advance this week in the volume of business, or rather in the transportation of cargoes, as evidenced by a number of vessels taking during the past few days their first cargoes for the season.

The slight advance spoken of is that of $\frac{1}{2}$ cent on corn out of Chicago, but it was hard pulling for the brokers to secure even this advance, yet when it is considered that even the one-cent rate was shaded a week ago the advance is more significant.

Ore rates remain stationary at 50 cents from Marquette or the head of Lake Superior, and the old 40-cent rate from Escanaba to Lake Erie ports, though even at these figures chartering has not been what could be called brisk during the week.

Coal cargoes from Lake Erie ports to the head of the lakes and Lake Michigan ports are still quoted at 20 cents to all leading ports with 5 to 15 cents for small light draft harbors and to Georgian Bay.

There is on the whole a rather better outlook for the future and it need not be said that there is ample room for improvement. The miserably low freights offered and ruling has been almost enough to discourage even the most sanguine, but it is now hoped that business will brighten up and that fair living freights may be obtained in the near future.

LAUNCH OF THE STEEL STEAMER EMPIRE CITY.

The steel steamer Empire City, built by the Cleveland Ship Building Co., to the order of the Zenith Transit Co., of Duluth, Minn., Capt. A. B. Wolvin, president and general manager, was successfully launched on Saturday, the 19th inst.

The weather was all that could be desired at the time of the launch and a large number of people were in attendance. Superintendant of the Shipyard Mr. Thomas Bristow was punctual, the officers of the company and guests were on the launching platform and at the proper moment Mrs. James C. Wallace, wife of the vice president and manager of the company, gracefully performed

the all important christening ceremony and the launch was pronounced a complete success.

The general dimensions of the Empire City are 426 feet over all, 406 keel, 48 beam and 28 feet deep. She has been built on what is now known as the channel bar system of construction with material throughout, of Carnegie Steel Co.'s open hearth steel. The water bottom is five feet deep and is estimated to carry from 2,000 to 2,500 tons of water ballast, a fairly good ballast trim, even for large ocean carriers, while she has twelve hatchways there are no laid 'tween decks, but the main hold of the vessel is divided into four separate compartments, by steel bulkheads, thus insuring safety against collision. The ordinary style of deck house, strongly built of steel, is located forward and the crew space is aft and below the main or spar deck. This is a new departure, and one which the builders believe is going to be quite an innovation, as there will be no after house to catch the wind so as to retard the speed, or require to be replaced after a few years' service. The cabins will be handsomely finished in quarter sawed oak. The Empire City will have three pole spars, steam windlass and capstan in connection therewith, also steam capstan aft and two steam capstans amidships, all furnished by the American Ship Windlass Co., Providence, R. I. The Williamson Bros.' steam steerer, and the builders' steam deck winches. She will be lighted throughout with electricity, having two distinct and separate plants, consisting of vertical direct connected engines and generators.

Her engines are of the vertical quadruple expansion type, h. p. cylinder 17 inches, first int 26 inches, 2d int 39 inches and l. p. 60 inches by 40 inches stroke. Boilers—2 Babcock & Wilcox water tube, allowed a working pressure of 250 pounds steam to the square inch and reduced at the engines to 200 pounds—all of the pumps are independent and separate from the main engines.

A thorough system of ventilation for firehold, engine rooms and officers' quarters is assured by the introduction of fans manufactured by the Buffalo Forge Co., and as furnished to a number of high-classed lake-built steamers, and it is thought that the foregoing power and equipment will drive the new steamer on the most economical basis at a rate of 12 miles an hour when she is loaded.

Her estimated carrying capacity is 5,000 gross tons on a mean draft of 16 feet and the completion of the vessel is so well along that unless the non-arrival of the boilers from the makers' works in New York detains the builders from fully completing the new steamer, she will be ready for work in about two weeks.

Mr. Robert Logan, Cleveland, superintended the construction of the steamer for her owners. Capt. Ralph Lyon has been appointed master with Mr. Joseph Hays, chief engineer.

EASTERN FREIGHT REPORT.

The usual weekly freight report furnished the Marine Record by Messrs. Funch, Edye & Co., New York, states as follows. Fixtures for grain during the week under review have been unimportant as regards full cargoes to Cork f. o. b., and the engagements made of larger boats to take the berth with part cargo of grain show a slight decline in rates. Charterers' views at the moment for former description of tonnage are 2s 4 $\frac{1}{2}$ d for prompt shipment, 2s 6d for July, 2s 9d for August, 3s@3s 1 $\frac{1}{2}$ d for September from customary range of ports, whereas owners generally are holding for about 3d better rates. Whilst owners have prospective falling off of tonnage bound this way in their favor, it is still a question whether present light demand for tonnage until well into August will not prove a full offset until that period. Deals and timber continue to supply an outlet for a considerable portion of the steamers unwilling to face the wretched grain and general cargo freights obtainable, and rates in the Provinces as well as in the Gulf ports continue to hold up comparatively well, after having latterly undergone some decline in rates.

There is no particular change in our market for sailing vessels, which continues firm under light offerings of tonnage, whilst rates show no important fluctuations. As anticipated in our last, there is slightly more activity in the lumber trade from the Gulf to South America, and we have hopes of seeing livelier times in the near future. There is also a fair demand for deals from the Provinces and for timber from the Gulf to Europe, but rates continue generally unchanged. Several further vessels have been chartered for case oil to the far East at full former rates, and, as the demand continues fair and offerings slight, we do not foresee any speedy reaction. In other lines nothing of special interest has transpired.

PRACTICAL METHOD FOR FINDING COMPASS ERRORS.

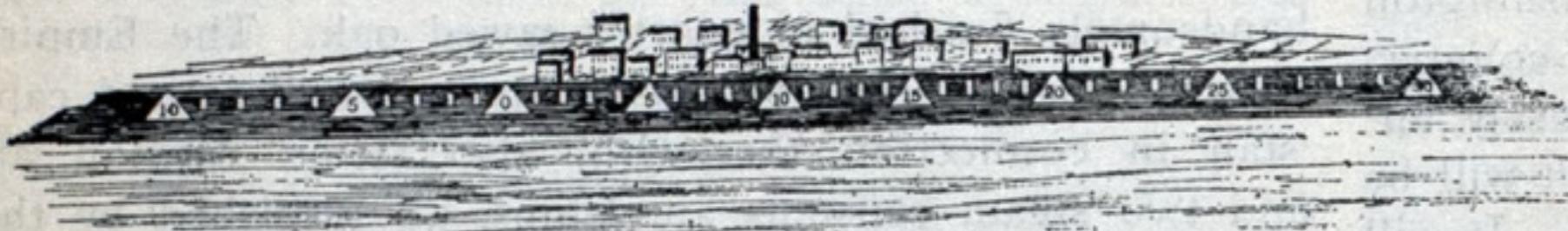
ARRANGED FOR MASTERS AND PILOTS ON THE GREAT LAKES.

BY JOHN ROSS, LATE MASTER LIGHT-HOUSE TENDER 9TH. DISTRICT.

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CHAPTER V.

On the Great Lakes there are a number of places where stations could be established for finding the compass deviations. At Liverpool, England, Cherbourg, France, and Cronstadt, Russia, stations for finding the compass error have been in use for years, and similar stations, at small expense, could be established for the benefit of lake navigators, at Buffalo, Cleveland, Sand Beach, Chicago and other localities. The sketch illustrates a supposed station at a breakwater on the lakes.



Magnetic bearing of chimney, S. 9° E.

At a station such as is shown in the sketch, a deviation table for a steamer may be obtained by making the vessel turn in a large circle, and noting as the vessel's head is on each (or on each alternate) point of the compass, the bearing of the chimney as observed by the standard compass and the magnetic bearing painted on the breakwater, and entering the bearings in their respective columns in the table and on the same line with the heading of the vessel at the time they were taken.

The vessel should be made to describe two circles, one with a port and one with a starboard helm. Two sets of deviations will be obtained; the mean of these will be a correct table. The best results will be obtained by steaming slowly in a circle as large as the station will permit; it is also advisable to frequently tap the compass bowl to overcome any friction on the pivot.

Or, a vessel may employ a tug to swing her while at anchor outside the breakwater; as in the above case, she should be swung twice, once with and once against the sun, and the tug should be kept at least 60 feet from the vessel. The mean of the two sets of deviations thus obtained, will be a correct table.

CHICAGO HARBOR.

Ranges which may be used for finding the compass error. (Taken from U. S. Hydrographic Office Chart No. 1365.)

FRONT OBJECT.	REAR OBJECT.	MAGNETIC BEARING.
Four-Mile Chicago Water-works Crib	Chicago Ave. Waterworks Crib Light	N. 44½° W.
Four-Mile Chicago Water-works Crib	Chicago Harbor Light on SE. end of Outer Breakw.	N. 59½° W.
Four-Mile Chicago Water-works Crib	Masonic Temple Chimney	N. 82° W.
Four-Mile Chicago Water-works Crib	Auditorium Tower	S. 89½° W.
Four-Mile Chicago Water-works Crib	Clock Tower, foot 24th St.	S. 63¾° W.
Chicago Harbor Light on SE. end of Outer Breakwater	Masonic Temple Chimney	S. 65½° W.
Chicago Harbor Light on SE. end of Outer Breakwater	Auditorium Tower	S. 49½° W.
Chicago Ave. Waterworks Crib Light	Water Tower on Pine St.	S. 65° W.
Chicago Ave. Waterworks Crib Light	Masonic Temple Chimney	S. 49° W.
Chicago Ave. Waterworks Crib Light	Auditorium Tower	S. 38½° W.

The preceding example shows how to obtain a complete deviation table or curve when the time will permit, but this is not the only application that can be made of the method. The magnetic bearings of a number of ranges in Detroit and St. Clair River and Lake St. Clair, at the entrances to many of the harbors, and along the shores of the different lakes, can be obtained by taking the true bearings from the charts and applying the variation. These ranges can be used by the navigator while on the passage up or down the lakes, to obtain, without delay, the deviations for the courses he will need most during his run. If he is favored with daylight, while bound up the lakes he should be able to get the deviations for his northerly courses and construct a curve for them. The same may be said about the trip down the lakes, on which he could obtain deviations for the southerly courses.

When selecting a range which is taken from the chart,

and which is to be used for finding the compass error, pick out objects which are distant from each other at least two miles and in a locality where the vessel can pass within 1½ miles of the front object of the range. A good rule to follow in selecting a range is to pick out one, where the front and rear objects will be two miles or more apart, and where the vessel will not be over one-half as far from the front object, when she is passing it, as the front object is from the rear object. This rule, of course, does not apply where ranges have been specially established for finding the compass error.

If the correct magnetic bearing of all the lighted ranges on the Great Lakes were given, they would be of the greatest assistance to lake navigators for finding the compass error, but extreme care would be necessary on board vessels where the masts interfere with the sighting of the compass directly ahead; not only must the vessel be fair on the range, but she must also be pointed straight for the range. In such a case, the difference between the magnetic bearing of the range and the course the vessel is steering as shown by any compass is the error of that compass for the course steered.

NOTE.—It is not intended that the method of finding the compass error by ranges or bearings should do away with the services of the adjuster; its use is to check the work of the adjuster and enable the navigator to find, with the least trouble and delay, what error his compass has.

(To be continued.)

SUEZ CANAL TRAFFIC IN 1896.

Mr. Frederic C. Penfield, U. S. agent and consul general at Cairo, has forwarded to the department at Washington a detailed report of the traffic through the Suez Canal for the year 1896, from which it appears that the tolls aggregated the sum of \$16,000,000. The number of vessels using the great waterway in 1896 was 27 less than in the preceding twelve months, but the tonnage last year was greater, and the receipts were abnormally enhanced by the transit of a great number of Italian soldiers, going to or returning from the Abyssinian war. As in 1895, a few more German ships passed through the canal than in the previous year, while the falling off of British ships was considerable. In 1895, the number of ships flying the British flag using the canal was 2,330, while the number in 1896 was 164 less. As it was, however, Great Britain supplied two-thirds of the total traffic of the Suez Canal in 1896. It is a regrettable fact that not one ship under the United States flag passed through the canal last year. In 1895, four war ships or yachts flying the stars and stripes made the passage of the canal.

The statistics of the traffic in 1896 are given in detail in the following table:

Nationality.	Steamers.	Net tons.	Traffic receipts.
Austrian.....	71	158,751.38	\$289,857
Belgian.....	1	1,891.22	3,431
British.....	2,166	5,824,100.13	10,649,130
Dutch.....	199	382,386.7	699,900
Egyptian.....	1	2,274.18	7,336
French.....	218	558,163.96	1,032,010
German.....	320	773,405.29	1,434,499
Italian.....	229	399,758.72	806,825
Japanese.....	10	30,553.79	51,348
Norwegian.....	38	72,248.76	128,880
Portuguese.....	7	7,993.74	13,404
Russian.....	47	129,127.8	288,843
Spanish.....	63	182,361.79	383,751
Turkish.....	37	41,289.87	141,221
Total.....	3,407	8,594,307.33	15,930,435
Total for 1895.....	3,434	8,448,245.83	15,631,748

COMPARATIVE STRENGTH OF NAVIES.

The writer of an article in a recent issue of the Marine Rundschau has laid before his readers a carefully thought-out estimate of the fighting values of the various fleets expressed in terms of units. After dealing with the fleets of England, France, Russia, Germany, Italy, the United States, and Japan the conclusion is arrived at that there is only one sea power of the first rank, namely, England. Expressed in units the author of the article estimates the English fleet at 1,001, the French at 466, the Russian at 280, the American at 195, and the Japanese at 179.

TREASURY DECISIONS RELATING TO NAVIGATION LAWS.

A vessel registered pursuant to law, which by sale has become the property of a foreigner, shall be entitled to a new register upon afterward becoming American property, unless it has been enlarged or undergone change in build outside of the United States.

Vessels propelled in whole or in part by steam, and vessels above fifteen tons burden, carrying freight or passengers for hire, and propelled by gas, fluid, naphtha or electric motors, must, before receiving a register, enrollment, license, or other papers, undergo inspection by the proper officers and receive certificates that the laws relating to the construction and equipment of such vessels have been complied with.

On and after June thirtieth, eighteen hundred and ninety-eight, every place appropriated to the crew of a seagoing vessel of the United States, except a fishing vessel, yacht, pilot boat, and all vessels under two hundred tons register, shall have a space of not less than seventy-two cubic feet and not less than 12 square feet measured on the deck or floor of that place for each seaman or apprentice lodged therein. Provided, That any such seagoing sailing vessel, built or rebuilt after June thirtieth, eighteen hundred and ninety-eight, shall have a space of not less than one hundred cubic feet, and not less than sixteen square feet measured on the deck or floor of that space for each seaman or apprentice lodged therein. Such place shall be securely constructed, properly lighted, drained, heated and ventilated, properly protected from weather and sea, and, as far as practicable, properly shut off and protected from the effluvia of cargo or bilge water. The requirement as to crew space of seventy-two cubic feet per man applies to vessels the construction of which was begun after June 30, 1895, and before June 30, 1898.

Fishing vessels, yachts, and pilot boats are specifically exempted from the provision of section 1 of the act of March 2, 1895, so far as regards the amount of space which shall be appropriated to the crew, and from the provisions that said space shall be kept free from goods or stores not being the personal property of the crew in use during the voyage. (Act of March 3, 1895.)

If there be a break, a poop, or any other permanent closed-in space on the upper deck available for cargo or stores, or for the berthing or accommodation of passengers or crew, the tonnage of that space shall be ascertained and added to the gross tonnage: Provided, That nothing shall be added to the gross tonnage for any sheltered space above the upper deck which is under cover and open to the weather, that is, not inclosed.

Sir: The Department is in receipt of your letter of the 3rd inst., protesting against the payment of \$5.60 charged you by the local inspector of hulls at San Francisco, Cal., for inspection of your schooner, George and Olive, preliminary to change of name of the vessel, in accordance with the provisions of Department Circular No. 22, March 12, 1881, and Department decision 4821, dated April 8, 1881.

In reply to your protest, you are informed that the money collected by the hull inspector was in no sense a fee, but was payment for the service performed, such service not being a part of the officer's legal official duty, which is confined to the inspection of steam vessels.

The act of Congress which authorizes the change of name of vessels, by the Secretary of the Treasury, also authorizes the collection from the owners of vessels whose names are to be changed the necessary cost of examination as to the vessel's seaworthiness, either when made by civilian experts or by officers of the Steamboat Inspection Service. The Department has, for reasons of its own, adopted the method of which you complain, and can not at this time find sufficient reasons to warrant a change therein.

That a similar charge is not made for the examination of steam vessels, when applying for a change of name is due to the fact that the information of the vessel's seaworthiness may always be found in the inspector's certificate of inspection, an inspection not made for the purpose of change of name, as in the case of sail vessels, but for the protection of life and property, therefore in the interest of the general public, whereas, in the case of a sail vessel, the inspector's examination is simply in the interest of the owner of the vessel to procure a change of name wholly for his own gratification. L. J. GAGE,
A. J. Mervy, 678 17th St., Oakland, Cal. Secretary.

A LITTLE TOO MUCH OF THE "SOO" RIVER RULES AND REGULATIONS.

To the Editor of the Marine Record.

We have now had time enough to look into the workings of the "Soo" River rules and regulations for steering and sailing and I for one find them nearly a nuisance. Like the so-called White bill, they were hustled through to legality without due consideration.

This supervision with its fines, penalties and forfeitures nearly takes the control of a vessel out of a master's hands, as for instance:

Rule 1—No vessel ascending or descending St. Mary's River shall proceed at a greater speed than seven miles an hour, etc. This rule can be complied with by a loaded steamer when there is no wind, but when the wind is strong it would be impossible to control a large steamer in ballast trim, going at that speed.

Rule 2—No steamer without a tow * * * But steamers without a tow, may pass a steamer with a tow between the following points, to wit, turning channel buoy in northern part of Mud Lake and Everens Point and between the northern end of the Dark Hole and black buoy No. 13 in Little Mud Lake. The distance across Little Mud Lake is $3\frac{1}{2}$ miles over half of said distance is through a narrow dredged channel where it would not be safe to pass a tow.

and insurance companies say that Rule 14 provides for all such cases.

The captain uses his judgment and Uncle Sam says it was not necessary to do as he did. What are the results? The boat is fined, the case is appealed and possibly the fine may be remitted, but the boat must pay lawyer's fee, lose time, and the owners are put to other expenses and a great deal of annoyance, besides this the captain is liable to lose his command, but what becomes of the government official that made a mistake? He simply smiles and puffs his weed and lives to puff again. I do not wish it to be understood that I want to cast any reflection on the government officials, they are simply performing their duty faithfully, but I do say that the present laws are ignorant, obnoxious and unseamanlike.

I am satisfied that if less than a nine or ten-mile limit is insisted on under all conditions, that the insurance companies will have more losses on their hands this fall than they ever had in the "Soo" River any previous season.

I think that there should be a passing limit and that a quarter of a mile clause would be a good safe one.

A "SOO" RIVER KICKER.

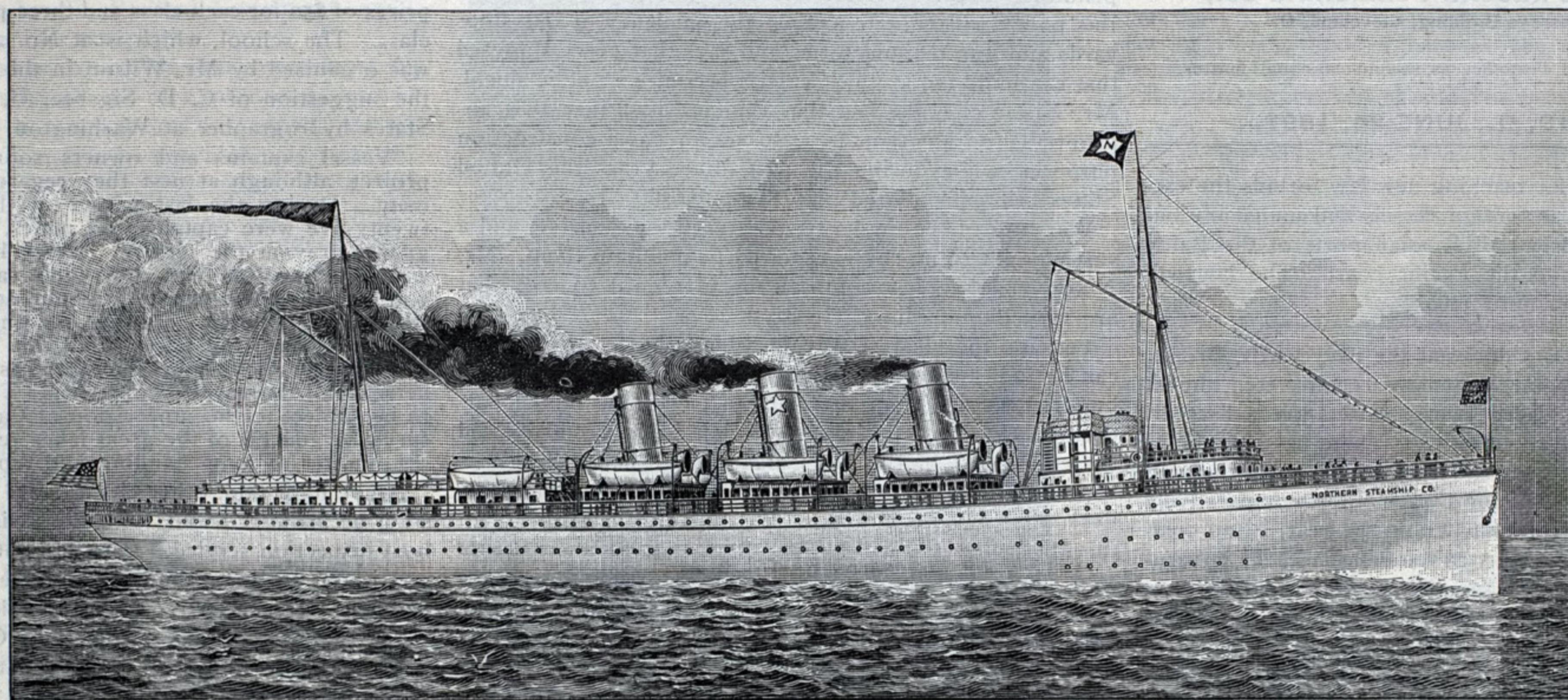
VENTILATING DOUBLE-BOTTOMS

Endless trouble has been caused to shipowners and their representatives in recent years by the rapid corrosion of

destructive to the ballast tanks. The system has been subjected to many practical tests for a long period, and testimony is not wanting as to its value in preventing, or at any rate minimizing, corrosion in the ventilated spaces.

LUBRICATING SHIP'S BOTTOMS.

The invention of a simple and inexpensive device for accelerating the speed of ships and preventing barnacles and corrosion has recently been brought to the attention of the Chief of Construction and other officials of the Navy Department in Washington. The invention consists of a mechanism which envelops the submerged portion of a ship with a film of oil, thus reducing friction and overcoming to a large degree the resistance of the water. A series of iron flanges are fastened along the bottom and sides of the ship below the water line, in which are inserted sheets of woven wire netting, lathing, or sheet iron, covered with an absorbent composition saturated with oil. The flanges have a semi-circular covering on top, below which runs a finely perforated pipe which ejects a fine spray of oil against the inside of the flange and on to the sheets, from which it spreads downward. The oil is not carried away by the water, but through capillary attraction is spread, thus keeping the ship's hull greased without any waste of oil. It is said



THE HANDSOME TWIN SCREW EXCLUSIVELY PASSENGER STEAMERS NORTH WEST AND NORTH LAND.

Built by the Globe Iron Works Co., Cleveland, for the Northern Steamship Co., J. J. Hill, President. Commenced running this week between Buffalo and Duluth. Dimensions, 386 feet over all, 44 feet beam, 34 feet depth of hold. Machinery, quadruple expansion engines; diameter of cylinders, 25, 36, $51\frac{1}{2}$ and 74 inches by 42 inches stroke. Belleville boilers of 7,000 h. p.

This would leave probably $1\frac{1}{2}$ miles where it would be safe to pass a tow. The steamer without a tow must be half a mile behind tow when she enters the wide water, and half a mile ahead when she passes buoy No. 13. Will some highly educated mathematician please figure out what rate of speed it will be necessary for both boats to move to perform this wonderful feat?

Rule 3—No vessel shall pass or approach another vessel moving in the same direction nearer than a half a mile between the points mentioned in Rule 1.

As most masters are afraid of getting inside of the half mile limit, and not over one in fifty can judge or guess when they are half a mile apart, boats are usually from a mile to a mile and a half apart, and a great deal of valuable time is wasted. I would suggest placing a white stake at every half mile limit.

Rule 6, Amended—Steamers bound in opposite directions shall, when within half a mile of each other, slow to a speed not exceeding five miles per hour until each has passed the other. At times there is over a five-mile current through the Dyke, such being the case, it is impossible for a descending vessel to pass the land at said speed, and I ask in humanity's sake, what are we poor sailors to do. On one side we have the owners and insurance companies crying protect our property, on the other side Uncle Sam shaking his fist and crying comply with the law at all hazards. At the same time owners

the tops of water-ballast tanks in the vicinity of main boilers, and numerous and varied are the schemes that have been tried for arresting this rapid deterioration. There can be little doubt that this remarkable corrosion of tank tops is mainly due to the heat from the boilers acting upon the moisture in the tank and producing a sweat or vapor, and it is generally felt that given a means of thoroughly drying the tank when emptied the destructive process would be reduced to a minimum. Effective ventilation is undoubtedly a most efficient method of drying interiors of the kind, and Mr. Cowan Landreth, of Newcastle-on-Tyne, England, who has had large experience in the practical management of boilers and machinery, afloat and ashore, has devised what appears to be a simple and efficient method of ventilating steamers' tanks. Mr. Landreth employs for the purpose a system of induced draught which supplies a continuous current of fresh air through the spaces to which it is applied, and the necessary fittings are neither extensive nor costly. Donkey boilers are subject to much the same trouble in this respect as the tops of the water-ballast tanks, and although a donkey boiler is generally in actual use for a much shorter period each year than the main boilers it enjoys a considerably shorter life. Deterioration is greater and more rapid when the donkey boiler is out of use than when at work, and its close proximity to the main boiler furnaces gives rise to the same processes which prove so

that the composition is a perfect carrier of oil under the surface of the water, a feature which has never before been achieved, and which will make oil perform below the water-line the same service that it does in quelling a rough sea. It is said for the invention that, applied to any vessel, either steam or sailing, it will increase the speed by at least 25 per cent without augmenting the amount of machinery or the expenditure of fuel. Another and most valuable feature claimed is that it will prevent the growth of barnacles. These enemies to ships' hulls necessitate frequent dry-docking and scraping, at large cost. The inventor also declares that the fatty composition will completely prevent corrosion of hulls. The oil used is crude petroleum, and is supplied to the pipes by tanks and valves located above the water-line. The system is so arranged that in rough weather a large quantity of oil can be discharged along the sides of the ship and distributed over the surface of the water, thus providing a more effective method of greasing and smoothing high seas than any yet devised. The covering composition is an oleaginous preparation of tallow, calcined carbon, and several other ingredients which the inventor keeps secret. It is said that it hardens in the water and cannot wash off, and can be applied to submarine war projectiles, permitting double velocity. The inventor is Rudolf Altschul, a civil and mechanical engineer of New York city.

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An important and far-reaching new law forbids the carrying of trade by sea in foreign vessels and under any but the Russian flag between all Russian ports of the Baltic and the Black sea, and the Pacific coast. The law will not go into operation until 1900.

That the large new dry docks at the navy yards, Brooklyn, N. Y., should require extensive repairs, etc., almost before they had been placed in use, reflects great discredit on some persons high in authority. There has been blundering all along the line, and the \$100,000 appropriated by the House this week for repairs to a comparatively new dock, it having been built within the year, is too costly a mode of experimenting. In the first place, the government should never have sanctioned the building of a wooden dry dock. A stone dock of sufficient proportions to accommodate the largest vessels likely to be placed in commission for the next quarter of a century, and with a tested ability to stand the docking of a fully equipped vessel of from ten to twenty-five thousand tons weight should have been the lowest requirements for such an important piece of government work as a naval dry dock, instead of which, we have now at the best, a decaying, leaky, unreliable and unworthy structure such as the government ought to be heartily ashamed of owning.

Judging from the list of vessels infringing the St. Mary's River rules and regulations, it would appear as if all the tonnage, or at least all of the principal and larger steamers were being somewhat recklessly handled. Unless there was some swiftly ignorant work, or some very keen one-sided sort of smartness worked upon the delegation of masters that went to Washington in an effort to have the rules legalized and made compulsory the whole fraternity have only themselves to thank for the lumber that they are getting into now. It certainly appears as if underwriters and owners were about satisfied with the rules as they exist at present and it will take considerable logic or pennies to convince them to the contrary. In the meantime there is a long dreary wail going up from the men who put the halter, so to speak, around their own necks. If there are any flaws in the rules, the masters ought to take every possible and available means towards making such discrepancies known and not wait until they run themselves into further trouble. Owners don't feel like paying fines on account of a master's breach of his own rules, especially as times are now. And underwriters will readily emit a howl if called upon too frequent to pay damage bills. One correspondent registers a good-sized kick against the rules in the current issue of the Marine Record, now let others go and do likewise so that we may get at the root of the evil, if any exists.

COST OF A MODERN NAVY.

In an address at the opening of the Naval War College at Newport, Rhode Island, Theodore Roosevelt, assistant secretary of the navy, advocated the continued upbuilding of the United States navy by the addition of ships of the first class armed with the best of modern guns. He counseled the cultivation of a state of preparedness, and declared that Washington's maxim, "To be prepared for war is the most effectual means to promote peace," had never sunk deep into the American heart. In support of his opinion as to the value of a great navy, Mr. Roosevelt declared the disasters of the war of 1812 were due solely to the fact that we were not ready instantly to resent an attack upon our honor, and the glorious triumphs on the sea during that war were due to the few preparations which we had actually made for the war.

Mr. Roosevelt called attention to the fact that it now takes a much longer time than formerly in order to construct and equip a warship; and if there is any valid reason why the United States should spend millions for a navy in times of peace it is because the construction of such ships would keep our shipyards and gun foundries in operation and in a state of readiness for emergencies. Lewis Nixon, the naval designer, speaks upon this point in the current number of *The North American Review*, under the caption "The Military Value of the Shipyard." He deprecates the drift of opinion against the further expenditure in the direction of naval enlargement, because this policy will militate against the efficiency of our shipyards and gun manufactories and says that every shipyard that can build modern war vessels becomes a public shield. Mr. Nixon cites the fact that England has since 1885 appropriated no less than \$541,250,000 for naval construction purposes, while during the past fifteen years the United States has appropriated only \$110,330,656.

Warships of the modern type are very expensive, and a vast amount of money is required to maintain them. Mr. Nixon makes a few comparisons in regard to cost that are very illuminating. He says:

Perhaps the clearest way in which these vast changes can be indicated is by stating that the expense of firing a hundred rounds from the thirteen-inch guns of the battleship Massachusetts in ammunition alone would exceed the entire cost of the old Constitution's battery in 1812, with ammunition enough thrown in to fight all her battles! * * * Each one of the thirteen-inch turrets of the Massachusetts, with its two guns and all its actuating gear, cost more money, so far as construction is concerned, than the cost of the old Constitution from the time her keel was laid till she bombarded the Bashaw's castle at Tripoli! The cost of the whole battery of the Massachusetts, including the armor used as gun-protection, would have built, armed and equipped ready for battle two 120-gun three-deckers like the old Pennsylvania; the cost of the side-armor alone of the Massachusetts would have built and put in commission the Hornet and Wasp of our little navy in 1812; and the cost of the Massachusetts' machinery would have provided sail-power for our whole naval force at that time.

This shows why it is that naval expenditures are reluctantly provided for, but at the same time it calls attention to the importance of having shipyards that are capable of building modern warships.

A COMMENDABLE DEPARTURE.

A feature in which the government officials as well as shipowners have been lacking is now about being accomplished by underwriters, or at least one of their most prominent lake representatives in Chicago.

It is now some years since the Record advised the supervising inspector general of the steamboat inspection service as well as the board of supervising inspectors that unless they formulated proper steering and sailing rules and advanced the qualifications for holding a license, or passing an examination to obtain same, then private interests would usurp or take over their duties and demand that a revision be made all along the line. That we were correct in our views on this subject is being made more apparent each season, as witness the White bill, which, through the sole efforts of the masters was passed through Congress over the heads of and ignoring the board of supervising inspectors entirely. Next came in the rules for navigating the St. Mary's River, although it is but just to state that this was more a measure for the Secretary of War to deal with, as through the chief of engineers,

Corps of Engineers, U. S. Army, he is in charge of the conservancy and improvement of rivers and harbors, and the rules for navigating or piloting the St. Mary's River are essentially of this nature, and as compulsory measures were found necessary to prevent blockades through collision and otherwise as also to regulate the enormous traffic through this narrow and tortuous waterway such rules were formed. However, the lake shipmasters formulated their own "rules of the road" again in this case. The next notable change and one which the Record originated and always strongly advocated was the extension of officers' licenses from one year to a longer period or in fact that they should be made permanent unless called into question through gross negligence or the palpable carelessness of the holders thereof. This feature has also been accomplished through the joint efforts of engineers and master, not by any means through the wishes or advice of the board of supervising inspectors or the chief of that staff.

We now learn that a new departure is to be initiated, this time at Chicago and through the marked and estimable efforts of an underwriter, as a Chicago dispatch states, that "Lake masters and mates who show the greatest proficiency in the study of navigation as taught by W. J. Wilson, of the United States Hydrographic Office in the Masonic Temple, are to be rewarded by substantial cash prizes offered by George L. McCurdy, the insurance man. The idea is that fewer wrecks will occur if the captains are better schooled in navigation. There are to be two first prizes of \$50 for each class and three prizes of \$25 for each class. The school, which is at No. 20 Michigan avenue, was organized by Mr. Wilson in the winter of 1895-96 at the suggestion of C. D. Sigsbee, U. S. N., then United States hydrographer at Washington.

"Vessel captains and owners soon encouraged the project, although at first they regarded it as an experiment. During the last winter of the sixty-five pupils twenty-five were captains and mates, some of whom had grown gray in the service. Every hour which the men who are intrusted with lives and valuable property devote to the systematic study of the science of navigation, which is absolutely necessary for the lake region, adds just so much to the safety of all who sail the lakes, either as passengers or members of crews, as well as to the vessel herself and the cargo she carries. The examinations are to be subject to the supervision of Capt. F. D. Herriman, surveyor general of the great lakes register, and an ocean ship-master of long standing and repute."

As we have said, other changes are in evidence and will soon be brought about, with the assistance of the steamboat inspection service if it is thought advisable, but with or without such assistance in any case. Some of these departures were spoken of by shipbuilders and owners at the last annual meeting of the Lake Carriers' Association and others are in process of formulation.

We can but highly commend the excellent and far-reaching departure made by Mr. George L. McCurdy and so ably seconded by Capt. Herriman, at the same time the step clearly shows where the steamboat inspection service and its licensing department through local inspectors is drifting to, yet, they cannot say but what they have been duly warned through the Record's columns of the conditions existing at the present as well as in the past.

Some inquiries were set on foot about a couple of weeks ago relative to the advisability of establishing recruiting or shipping stations for the United States navy at the several principal lake ports. Up to the present the new departure has not got past the inquiry or preliminary stage, yet, at the same time it has been duly heralded that such steps are being taken by the navy department. It is quite certain that the new navy and the additional ships recently added finds itself short of hands. It is equally certain that a considerable body of the best kind of training element could be secured on the lakes or rather from the principal lake cities and adjacent localities. We therefore earnestly advocate the placing of an obsolete or condemned man-of-war as a training ship for all grades of seamen, at the several lake ports, or, say, central for Lake Erie, such a ship as the now condemned Yantic to be anchored and stationed at Cleveland, and a similar vessel for Detroit, Chicago and Duluth-Superior. The enrollment might not be very large for the first season but there can be no doubt but that after the training ship or ships were once established little difficulty would be found in keeping up the crew complement even after drafting a good batch from each vessel periodically, as required to man any extra vessel going into commission. This might also be an excellent means of reclaiming a certain element

among the youths of our country, orphans, and others, who, left to themselves, not unfrequently wind up in a reformatory or some such place, thus creating evil upon evil, instead of eradicating all that is not good by a thorough system of discipline and transforming a sure to become tramp into an industrious, useful citizen. Much might be, and in fact, has been, written on this important phase of the question of training ships, suffice it at the present to state that other maritime nations have tried it and the system works to perfection as it would be sure to do in the case of one or more of such vessels being stationed at lake ports.

The thanks of the Marine Record are due to the Chief Bureau of Statistics, Department of State, Washington, for a copy of Vol. I of "Commercial Relations of the United States with Foreign Countries" for the years 1895-6. The work is admirably gotten up, all statistical matter is ably handled by the bureau and the present volume is well bound so that it be lasting and invaluable as a work of reference.

CANADIAN TRANS-ATLANTIC STEAMER LINE.

The Canadian government has just laid upon the table of the House the papers relating to the fast Atlantic scheme. The documents include copies of the proposition of Messrs. Peterson, Tait & Co., the reply of the government thereto, and the agreement as finally ratified. The agreement is dated in March last and signed for the Dominion government by Sir Richard Cartwright, and by William Peterson for the company.

The company undertakes to provide four steamships of not less than 10,000 tons gross and of a speed of 21 knots per hour. They are to have a capacity for 1,500 to 2,000 tons of freight. There is also to be provided cold storage capacity for 500 tons of freight on each vessel, while the passenger accommodation is to be for at least 300 first, 200 second, and 800 steerage. Steerage passengers shall be carried for \$15 per head. The steamers are to be constructed under admiralty supervision, and to be up to the standard of the best ocean vessels afloat. They are to be not less than 525 feet long, with a draught of 25 feet 6 inches, which the navigable depth of the St. Lawrence channel, for the steamers are to run to Quebec and on to Montreal in summer.

The winter port is to be either Halifax or St. John, at the option of the contractors, the agreement being that the company shall declare which of the ports it will run to before the date for the commencement of the service, May 31, 1899.

Before that date the service will be commenced with two steamers, the remaining two not to be put on the route until May, 1900, when the service will be weekly. For the first year the steamers will give a fortnightly service only, and during that time will receive only one-half the stipulated subsidy of £154,500 annually.

Besides the steamships, which are to be capable of conversion into cruisers in time of war, the company is to provide a fast tender, of the torpedo type, of a speed of not less than 22 knots, which shall meet the steamers on their arrival in the St. Lawrence, with a pilot on board to bring the steamer up to Quebec.

It is exacted that the company shall carry the mails free, and not discriminate against Canadian railways, nor accept a subsidy from any other country, nor call at a foreign port. The contract is for ten years, and the security deposited is \$100,000.

OBITUARY.

(Herbert W. Mitchell.)

"In the midst of life we are in death."

The shipowning community of Cleveland were painfully called upon to again bear witness to the truth of the words contained in the foregoing quotation. Herbert W. Mitchell, oldest son of Capt. John Mitchell, one of the best-known vessel owners and managers in Cleveland, was killed by an electric car, while alighting from it on Euclid avenue, Friday night, June 18th. He was 21 years old, a very bright, scholarly and promising young man, who had just been taken into the firm, and of whom great things were expected had he been spared a member of the firm of Mitchell & Co.

The grievous accident which called hence one who was destined to make a mark in lake shipping circles, is deplored by all with whom he had been brought into contact during his brief business career as well as by a host

of personal and social friends. In this case it is difficult to understand the workings of the "hand that rules," nor in any case, can the finite comprehend the wisdom of the infinite. We can but condole with the afflicted parents and relatives in their sad bereavement, nor is it necessary to state that there is no want of expressions of sympathy from shipping men and circles, if such can in any way allay the trouble of the grief-stricken parents of the late estimable young man.

The funeral, which took place on Monday, June 21st, was attended by the local naval reserve division of which Mr. Mitchell was a member. The services were conducted by Rev. Dr. Rider, of the Euclid Avenue Methodist Episcopal Church, and consisted of the reading of Scriptures, prayer and a short address by the officiating clergyman. The Arion quartet sang, "Gathering Homeward," "Lead, Kindly Light," "God be With You Till We Meet Again," and "Still, Still, With Thee."

The floral tributes were elaborate and very beautiful. The pall-bearers were Messrs. Richard Baker, Everett McMillin, Ben Rose, Barto Tucker, Scott Stewart, George Pope, Richard Cottrell and William McAllister. The casket was placed in the receiving vault at Lake View Cemetery.

Among the friends of the family living at a distance who attended the funeral were Mr. Thomas Fitzpatrick, of Mentor; Mr. William Fetting, Mr. William F. Sauber



(THE LATE) HERBERT W. MITCHELL.

and wife, of Marine City; Mr. Henry C. Schnoor, of New Baltimore; Mrs. Fred Gratwick, of Buffalo; Mrs. Anna Koser, of Chicago; Capt. and Mrs. N. S. Whipple and Capt. Whitaker, of Detroit; Capt. J. S. Dunham, of Chicago; Mr. and Mrs. Frank Wheeler and daughter, of West Bay City; Mr. James McBrier, of Erie, Pa., and others.

MUST HAVE A STEAMSHIP LINE OF OUR OWN.

Our total trade with the three South American countries named was, in 1894, over \$112,000,000. Take the freight on this amount of goods and add thereto the receipts for passengers and mail transportation and it will be seen that there is no small income from our own business. South America does none of this business, and we do but a trifling. It is practically all done for us in foreign vessels.

It may be argued that if business is done by the carriers at a loss, let the foreigners have it. But Europe does not subsidize lines between North and South America that would not promote her trade. Hence our business has to pay its own way, and for that reason freights are much higher between North and South America than between Europe and South America, though the distance is about the same.

What we want is an American steamship line to promote American interests. Grant that it will run at a loss for a time. It will reduce the freights and therefore cheapen our coffee, sugar, hides and rubber. It will pay the money to our own people and keep it in circulation at home. It will pay wages to workmen to build ships and

to man them. It will induce some of our people to visit South America instead of Europe for health, pleasure and business, thus again patronizing our own institutions. It will increase the sale of our products, thus increasing our national income and contribute to the payment of our foreign indebtedness and to making us independent of foreign capital.

Moreover, such steamers may be so built that they will answer admirably as tenders and commerce destroyers in case of war, and they will be ready for immediate service with trained crews. It is much wiser and more economical to expend a reasonable sum on a commercial fleet that may be ready in case of war than to expend all that might be available on the war fleet. England owes very much of her naval strength to her great merchant navy and trained seamen. The merchantman, besides being at all times ready as transports, are also quickly convertible into direct fighting auxiliaries. By all means build up our merchant navy, even if the main purpose be to strengthen our war navy.

Such steamers need not be very large nor very fast. They should be about like those in service between Europe and South America, say about 5,000 tons and speed about 15 knots. Bi-weekly service would be sufficient at least to begin with.

The subsidy should not be extravagant, but must not be niggardly. It should be remembered that the ships must run at a loss for a time. There should be a proviso similar to that of the English, which is that all earnings in excess of eight per cent interest must go to the government. A better plan is that all earnings over six per cent be equally divided between the company and the government.

The government aid should not be confined to a line between North and South America. There should be lines to the Mediterranean and South Africa at least. American wares ought to find their way to both these markets. It is probable that an annual expenditure of about \$10,000,000 would be sufficient, certainly to begin with.

Under our earlier navigation laws foreign goods imported in American built vessels sailing under the American flag paid 10 per cent less duty than goods imported under foreign flags. Under that law, very few dutiable goods were imported under any but the American flag. It operated as a great incentive to the upbuilding of our merchant marine. This, in connection with the excellence and abundance of timber for ship-building, soon made us in proportion to population the foremost naval nation in the world, and in the war of 1812-14 we were able to cope with England herself on the high seas.

For some unaccountable reason, the law giving the 10 per cent rebate duties was repealed. It was argued that if our shipbuilding and ship owning interests could not live without having such advantage, let them die. Then came the foreign steamships with their subsidies, while ours had none. Then came the iron ship, which gave the advantage in materials as well as that of the cost of labor to the foreigner, and the result was death to our shipping.

It is idle to talk about our manufacturers seeking a foreign market without a revival of American shipping. Commerce does follow the flag. When there is no American flag to follow, it will follow some other flag. The consumer does not now have to hunt the producer. The producer must seek the consumer. It will not do to argue that the American manufacturer can get plenty of foreign ships to carry his goods to foreign market. He can. But the foreign ship owner invariably carries the foreign goods first, and he carries the seeker for purchasers for foreign goods first.

*From a pamphlet on "South America; Its Resources and Possibilities," by John A. Johnson, president of the Fuller & Johnson Mfg. Co., and of the Gisholt Machine Co., of Madison, Wis. Mr. Johnson visited South America in 1896 as a member of the party sent by the National Association of Manufacturers of the United States. Copies of his pamphlet may be obtained by addressing him.

HOOKS FOR DAVIT TACKLE FALLS.

The Standard Automatic Releasing Hook Co., State street, New York, informs the Record that they have provided the Princess Anne of the Old Dominion Line and the new light ships building for the Light-House Department at Bath, Maine, and launched on Thursday last with their automatic releasing hooks to be applied to all boats davit tackle falls.

H. C. BURRELL,

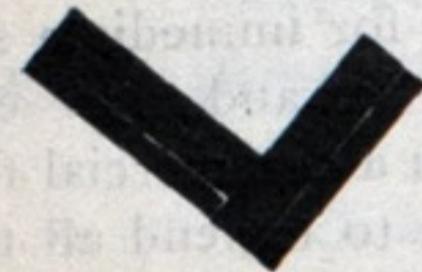
Marine Reporter.

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BOAT ON THE RIVER
AT ALL HOURS,
NIGHT OR DAY.

Signal: One long
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Our boats are
white. We'll treat
you white and deal
with you!

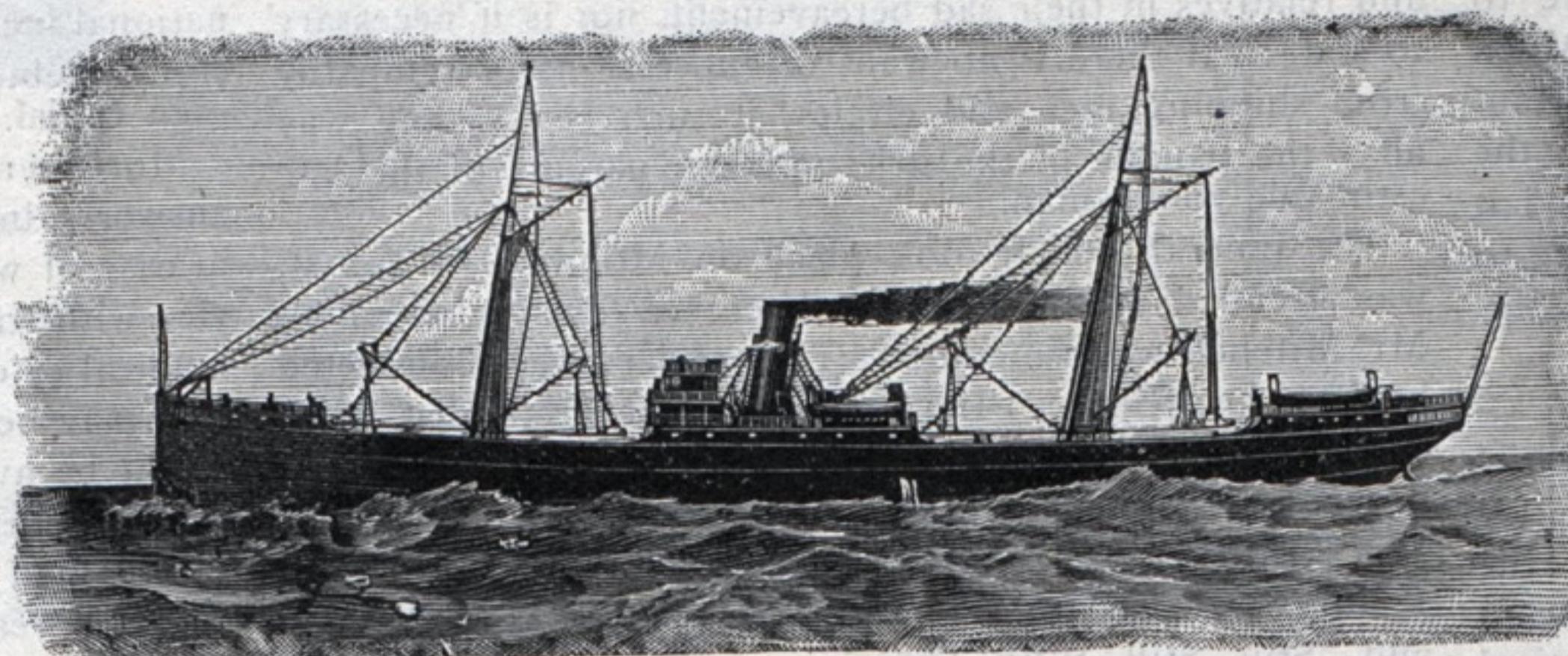


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202-210 South Water Street,
CHICAGO, ILL.

THE POOL AND THE NEW ELEVATORS AT BUFFALO.

The grain elevator pool, or ring, at Buffalo, has long been "a thorn in the flesh" pockets on sighted disbursement sheets, etc., to vessel owners. We are now pleased to see that the "American Elevator and Grain Trade," published by Mitchell Bros. Co., Chicago, a worthy champion of all elevator and grain trade rights, sits down editorially on the Buffalo steal in the following terms: "The pool elevator men of Buffalo are panic-stricken by the incursion of western elevator men into their territory, and the expected cut in transfer rates from the exorbitant figure which they have long maintained. The Raymond elevator at Buffalo, which is now running day and night transferring grain for $\frac{1}{2}$ of a cent a bushel, or $\frac{1}{2}$ cent less than the pool houses charge, is getting all the business it can handle, and it is reported that the new houses which will be completed in the fall will adopt the same schedule of rates."

The pool elevator men have mulcted the trade so long that it grieves them sorely to think that they shall soon lose control of the business and be compelled to reduce their charge to a reasonable figure. Some of them have worried themselves into a cold sweat over the matter, and then confided the information to the wiseacres of the local press that grain stored in steel tanks would sweat, and that the "sweating would produce a gas which would cause spontaneous combustion and the destruction of grain and tanks." Terrible thought! and this dire calamity is to offset the great saving of insurance money the elevator men expected to incur. The pool elevator men have felt so secure of their large profits despite their old worn-out facilities, that they have paid no attention to the improvements of recent years, so are ignorant of the fact that steel tanks have been used very extensively and successfully during the three last years for storing grain. It has not sweat and spontaneous combustion has not resulted.

If the erection of the new elevators results in the destruction of the pool and the transfer of grain for a reasonable charge, the trade, and especially those engaged in shipping via Buffalo, will have much to be thankful for. The extortionate charges of the Buffalo pool have been borne entirely too long.

COMPARATIVE STATEMENT.

The thirty-ninth annual report of the trade and commerce of Chicago for the year ending Dec. 31, 1896, compiled for the Board of Trade by George F. Stone, secretary, gives a comparative statement, showing the number of vessels that entered and cleared at the principal sea ports of the United States and at Chicago during the year ending June 30, 1896.

PORTS.	Entrances	Clearances	Totals.
Baltimore, Md.	1,810	2,683	4,493
Boston, Mass.	3,019	3,243	6,262
New York, N. Y.	7,174	6,788	13,962
New Orleans, La.	1,212	1,189	2,401
Philadelphia, Pa.	1,846	2,064	3,910
San Francisco, Cal.	1,105	1,395	2,500
Totals.	16,166	17,362	33,528
Chicago.	9,263	9,424	18,687

AN AMERICAN AT THE HANYANG IRON WORKS.

Consul Child writes from Hankow, that Walter Kennedy, a citizen of Pittsburg, Pa., has, under the instructions of Sheng Taotai, taken charge of the iron works at Hanyang. He has been making good steel rails, 30 feet in length, at the rate of one hundred and twenty per day. He understands his business, and the Chinese officials are well pleased at the skill he has evinced in getting their large plant in order. The rails are shipped to Shanghai, to be used on the Woosung Railroad.

It is safe to say that it will take the Chinese talent and labor but a short time to learn all that Mr. Kennedy may

know about making steel rails nor can he guard the secret of his judgment and methods of work close enough to prevent John Chinaman from catching on to the why and wherefore.

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY. Bushels.
Albany	30,000	50,000			
Baltimore	391,000	1,35,000	248,000	150,000	
Boston	157,000	955,000	272,000		23,000
Buffalo	1,123,000	809,000	376,000	52,000	204,000
" afloat					
Chicago	4,442,000	7,606,000	1,998,000	668,000	36,000
" afloat					
Cincinnati	1,000	3,000	8,000	1,000	1,000
Detroit	25,000	42,000	16,000		18,000
Duluth and Superior	1,848,000	10,000	883,000	372,000	286,000
" afloat					
Indianapolis	21,000	72,000			
Kansas City	135,000	162,000	177,000	6,000	
Milwaukee	113,000	3,000	1,000		308,000
" afloat					68,000
Minneapolis	9,669,000	100,000	136,000	18,000	18,000
Montreal	309,000	16,000	627,000	42,000	44,000
New York	990,000	1,239,000	2,368,000	396,000	74,000
" afloat	123,000	87,000	12,000	8,000	30,000
Oswego		89,000			2,000
Peoria			19,000		
Philadelphia	148,000	712,000	76,000		
St. Louis	138,000	544,000	133,000	7,000	
" afloat					
Toledo	306,000	680,000	90,000	73,000	
" afloat					
Toronto	85,000		47,000		21,000
On Canal	382,000	1,376,000	103,000	87,000	197,000
On Lakes	276,000	1,780,000	1,406,000	134,000	140,000
On Mississippi		18,000	46,000		
Grand Total	20,673,000	17,368,000	9,092,000	2,342,000	1,144,000
Corresponding Date 1896	48,819,000	9,370,000	8,396,000	1,521,000	957,000

A London shipping exchange says: "As we are all in a 'jubilee' mood just now, we may note that the tonnage of the port of London has increased from 6,000,000 to 22,000,000 during the Queen's reign."

VIOLATION OF SAILING AND STEERING RULES.

The following is a list of vessels reported for violating the sailing and steering rules of St. Mary's River:

Northern King, June 7, Rule I.
Harlem, June 10, Rule I.
Merida, June 10, Rule I.
T. D. Stimson, June 12, Rule I.
India, June 13, Rules I and VI.
Cadillac, June 13, Rules I and VI.
Marilla, June 13, Rules I and VI.
Alva, June 13, Rules I and VI.
Colorado, June 13, Rule I.
Cranege, June 13, Rule I.

List of vessels warned for violation of St. Mary's River rules: Athabasca, Bangor, Bannockburn, Birckhead, Carnegie, Colgate Hoyt, Codorus, Chisholm, Coralia, Cort, Cadillac, Castalia, Curry, Colorado, E. A. Shores, Frontenac, Fulton, Fisk, Gould, Gratzwick (steel), Griffin, Grecian, German, Glasgow, Gilbert, Green Bay, Harlem, Iosco, Italia, Joliet, Japan, Kearsarge, Lizzie Madden, Mohawk, Mariska, Maruba, Manitoba, Minnie M., Merida, McWilliams, Mahoning, Monarch, Mariata, Marina, Murphy, Northern Queen, Northern King, Northern Wave, Northern Light, North Star, North Wind, Nimick, Neshoto, Nicol, Oglebay, Peerless, Portage, Pontiac, Pope, Queen City, Rosemount, Roman, Roby, Republic, Rockefeller, Siberia, Stafford, Spokane, Stephenson, Stimson, Sauber, Sevona, Siemens, Shrigley, Sitka, Shenandoah, Saxon, Trevor, Traverse, United Empire, Victory, Wawatam, Wade, Wilhelm.

In this connection we print the schedule of time to be run on the river, according to the present rules:

Treasury Department,
Office of the Secretary,

Washington, D. C., April 6, 1897.

The following schedule of the time required to be run between certain points in the St. Mary's River under a speed limit of seven miles per hour, is hereby published, in connection with the rules and regulations governing

the movements and anchorage of vessels in said river, for the information of all concerned, viz:

SECTIONS.	Distance in statute miles.	Time in minutes.
Mud Lake Buoy to Everens Point	2 1/2	22 1/2
Everens Point to Encampment Crib Light	3/4	6 1/2
Encampment Crib Light to Dark Hole Turn	1 1/2	14
Dark Hole Turn to Harwood Point Turn	3/4	28
Harwood Point Turn to Junction Buoy, Hay Lake Dike	3/4	28
Junction Buoy to Upper Flats, lower cut	2 1/4	23 1/2
Lower Range (Frichette Cut) to Red Can Buoy Cut	1 1/2	13
Red Can Buoy to Lower Light, Little Rapids	1 1/2	13
Lower Light, Little Rapids, to Light House (North Entrance)	1 1/2	13
Light-House, North Entrance, to Government Pier	1 1/2	14
Little Rapids Cut, through island	1 1/2	9 1/2

W. E. CURTIS, Acting Secretary.

THE CANALS OF MARS.

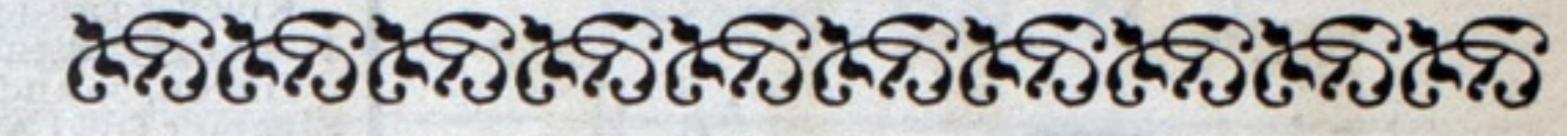
As the result of long-continued and very successful observations in Arizona and Mexico, Mr. Percival Lowell concludes (as quoted in the New York Herald) that the canals of the planet Mars show such "a marvelous system as cannot well be due to any natural forces, and finds its best explanation in the presence of local intelligence on the planet, which has purposely created a system of irrigation or the perpetuation of its own existence." Mr. Lowell thinks there is little or no water in lakes or seas on Mars, and that the planet's water-supply comes from the snow and ice at its poles, which melt rapidly in summer. The canals he believes to have been constructed to care for and to distribute this annual flood from the fast-melting ice-caps of the polar regions.

Such astronomy as this that Mr. Lowell has been busy with must be of great use to keep the imagination in a healthy state. It involves a real change of thought to get one's mind off the earth entirely and to busy it with Martian investigations. It will be interesting to learn what the observers who peep through the great Yerkes telescope, for which lenses of unprecedented size have been very recently completed, will have to say about the Martian canals.—Harper's Weekly.

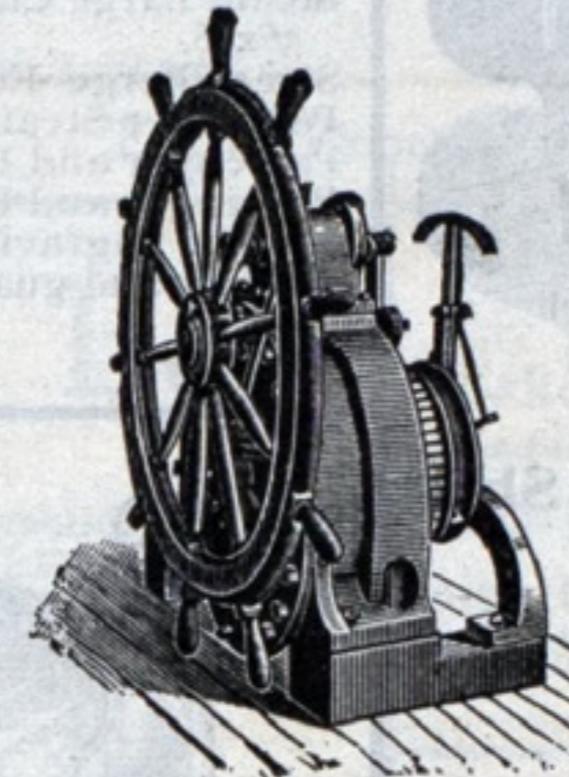
TACOMA COMMERCE.

The following compilation has been made by the Tacoma Chamber of Commerce and Board of Trade from statistics furnished by the Yokohama General Chamber of Commerce for the purpose of supporting its claim recently made to the Treasury Department, that the largest percentage of teas exported from the Orient to the United States passed through the port of Tacoma. The statistics given cover the exports of tea from Japan to America for the season of 1896-97, beginning May 6, 1896, and ending April 24, 1897:

Pounds Tea.	Per cent.
Via Tacoma, Northern Pac. Line....	16,459,560
Via Suez Canal, Tramp steamers....	8,834,790
Via San Francisco, Pac. Mail & O..	7,727,646
Via Vancouver, B. C., Can. Pac....	5,962,384
Via Portland, Ore., Ore.-Asiatic Line	1,937,546
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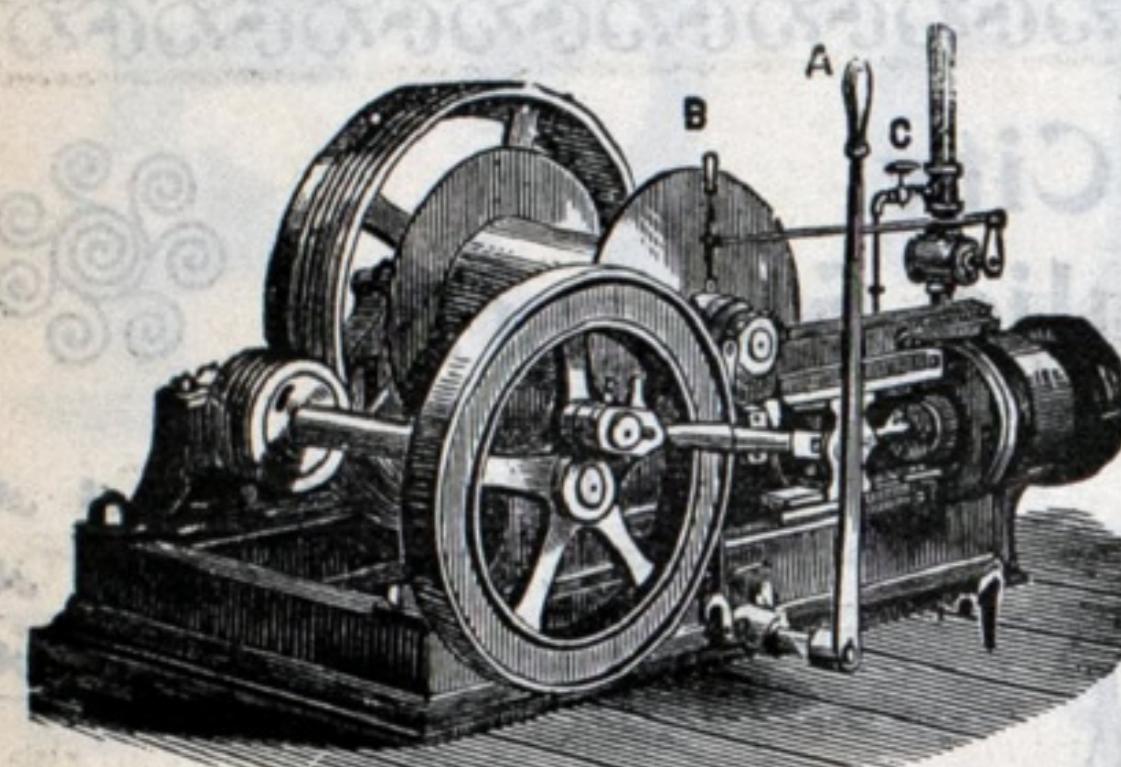


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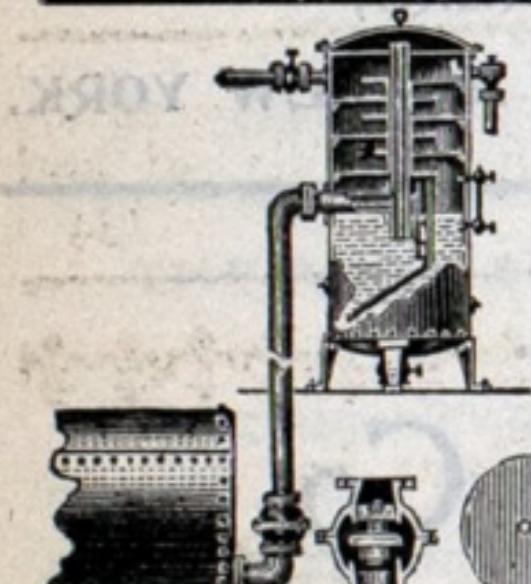
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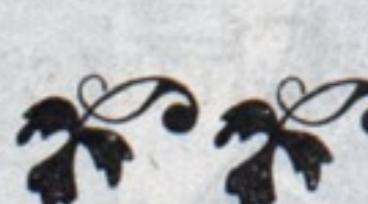
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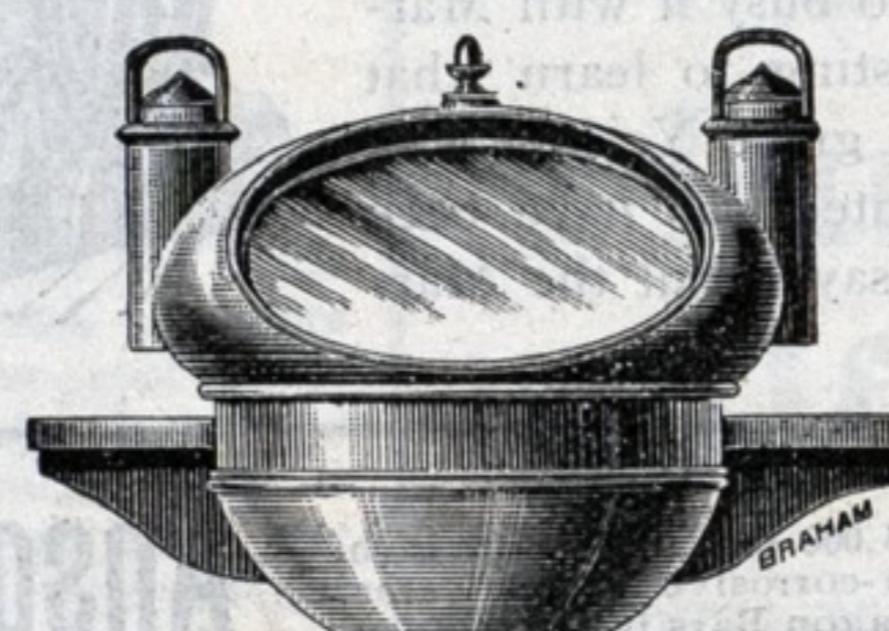
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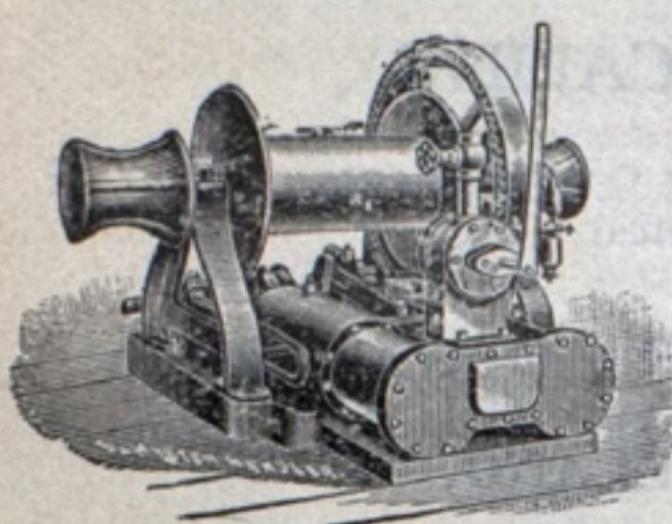
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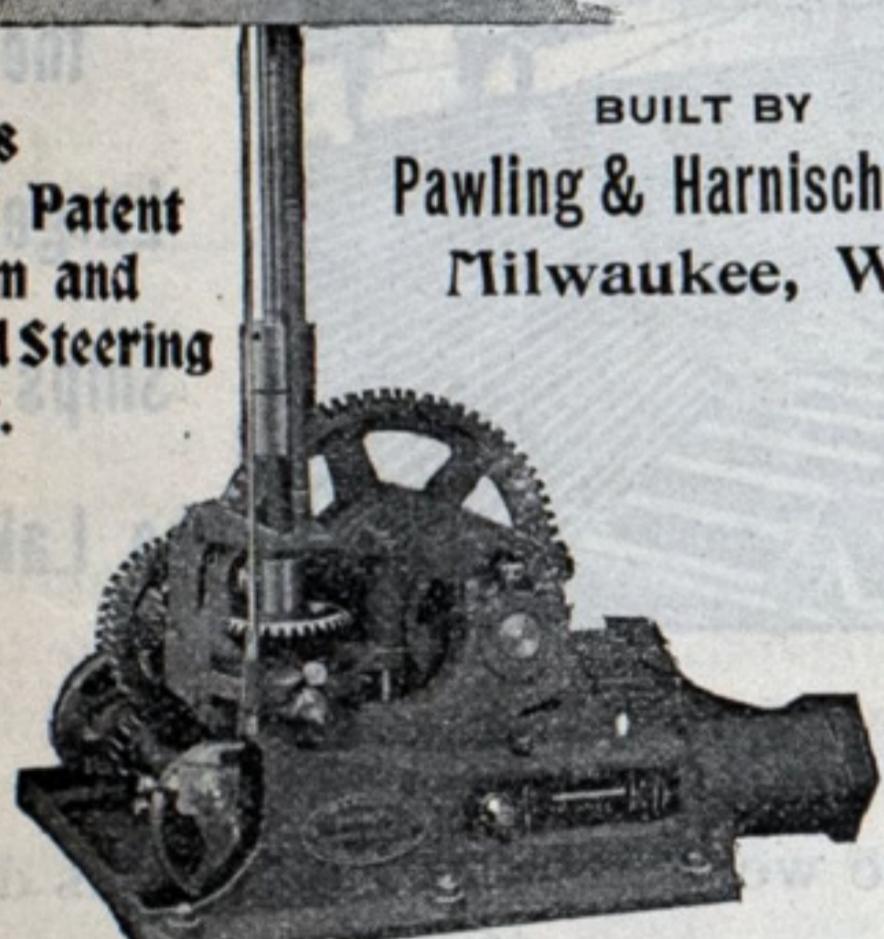
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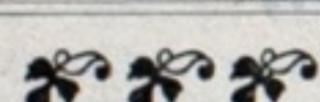
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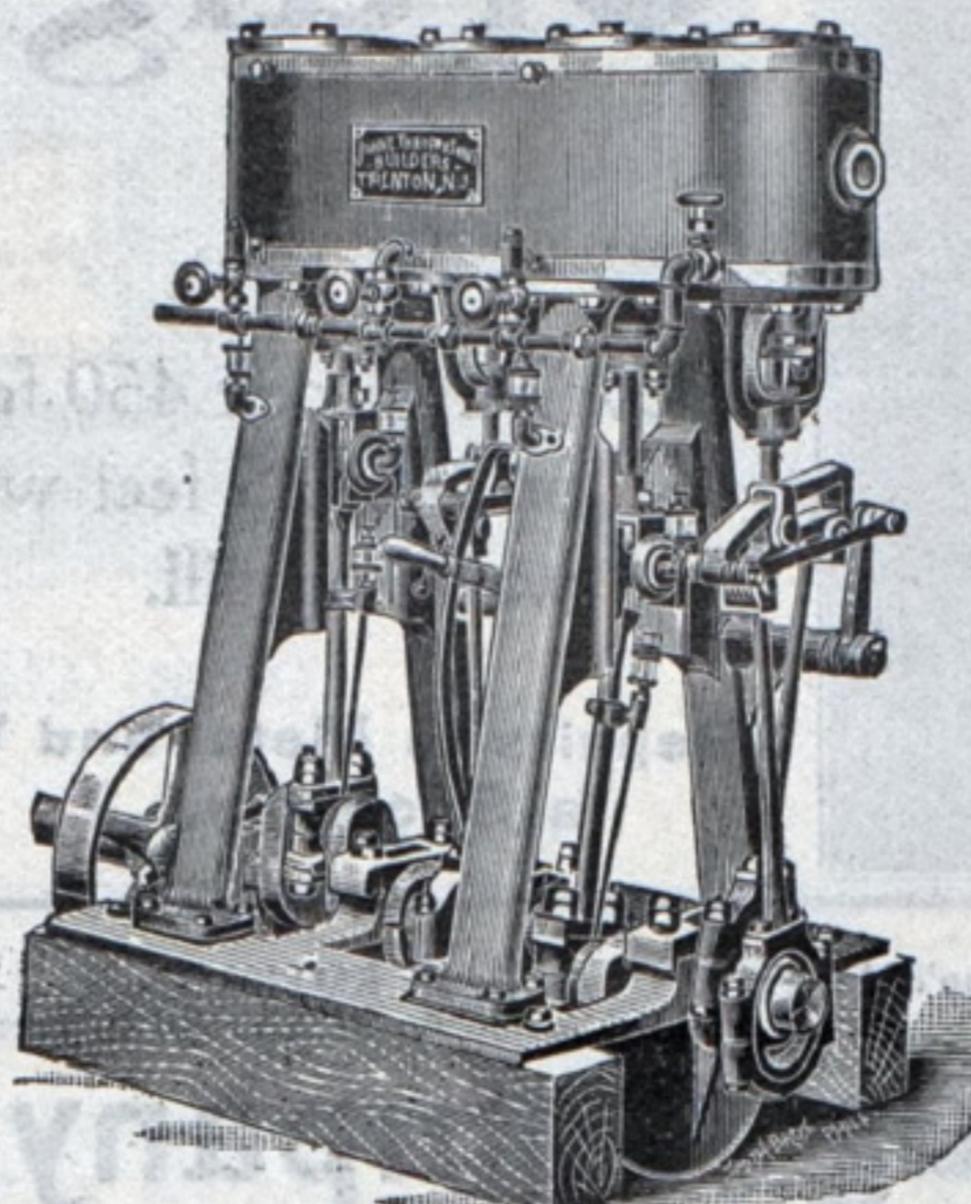
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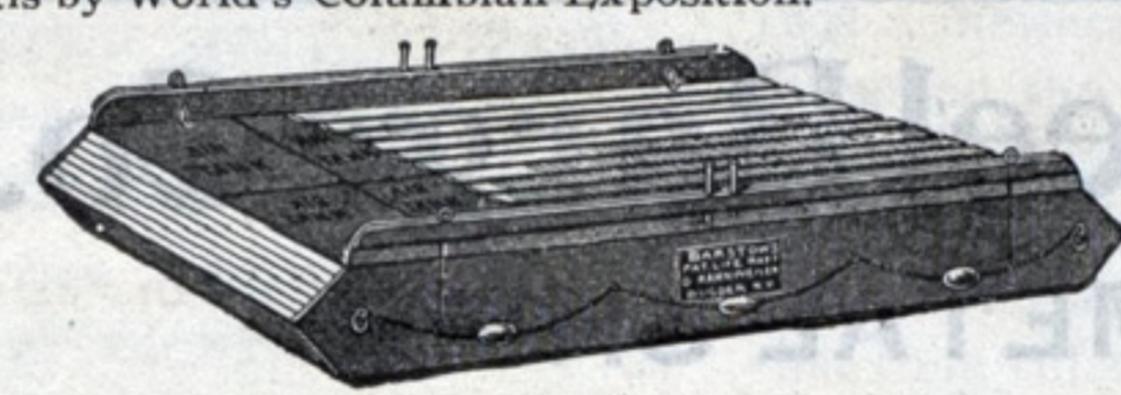
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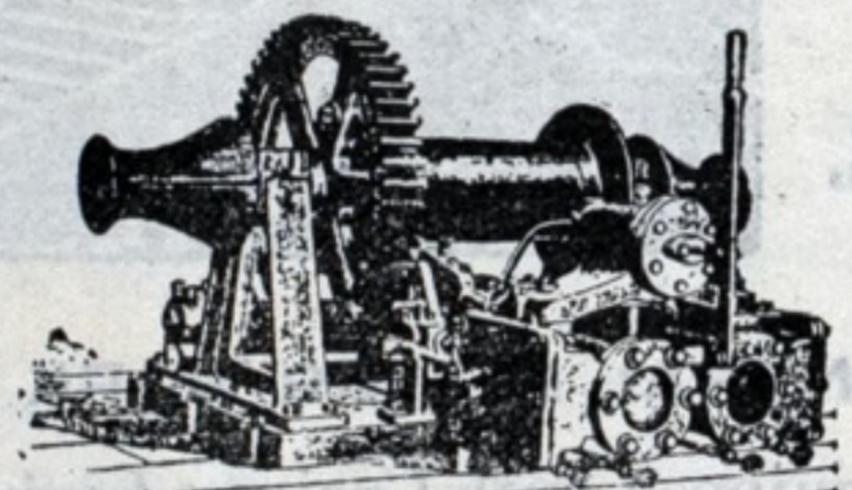
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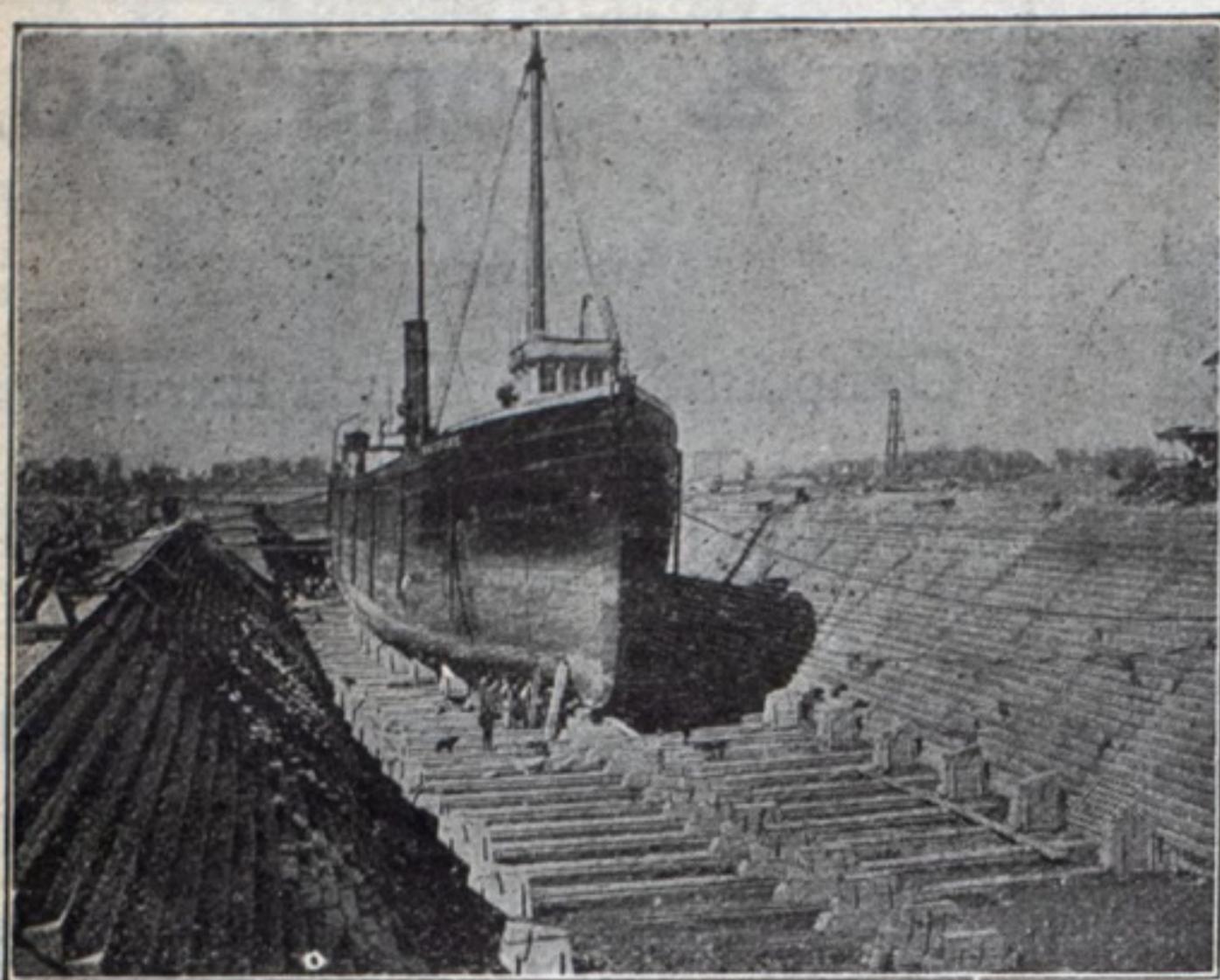
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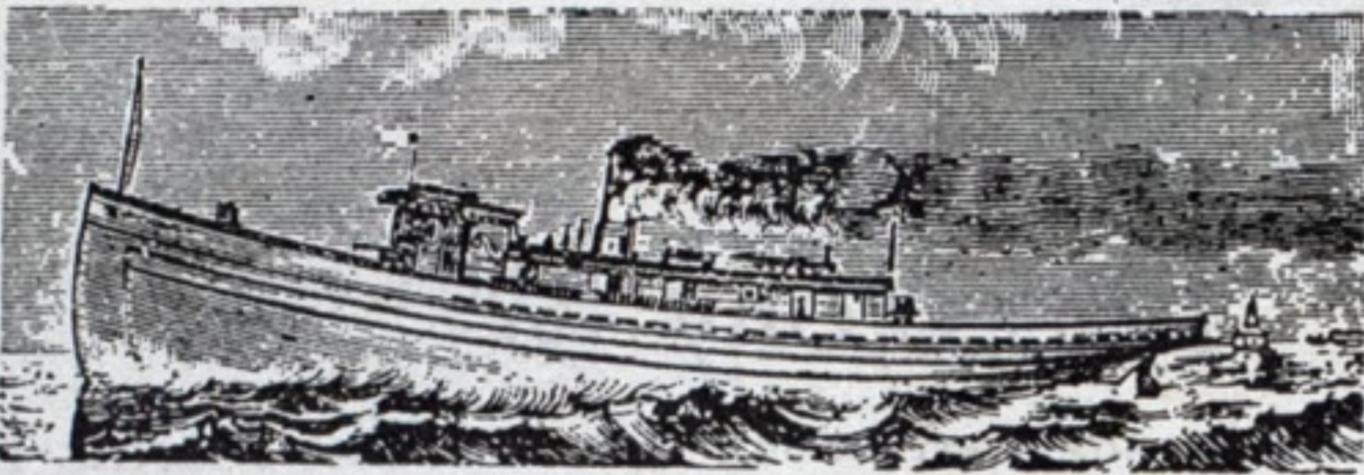
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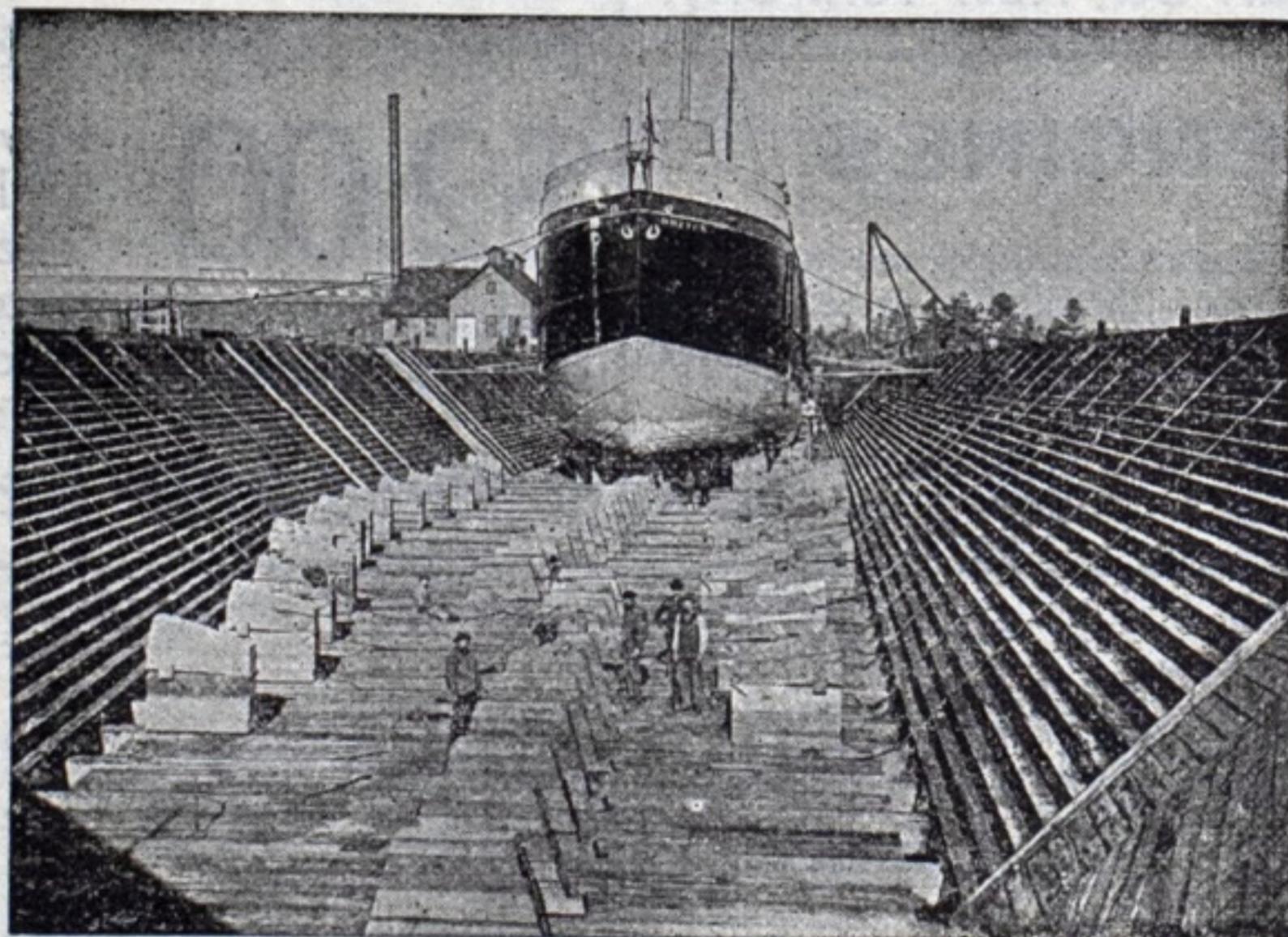
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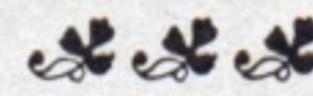
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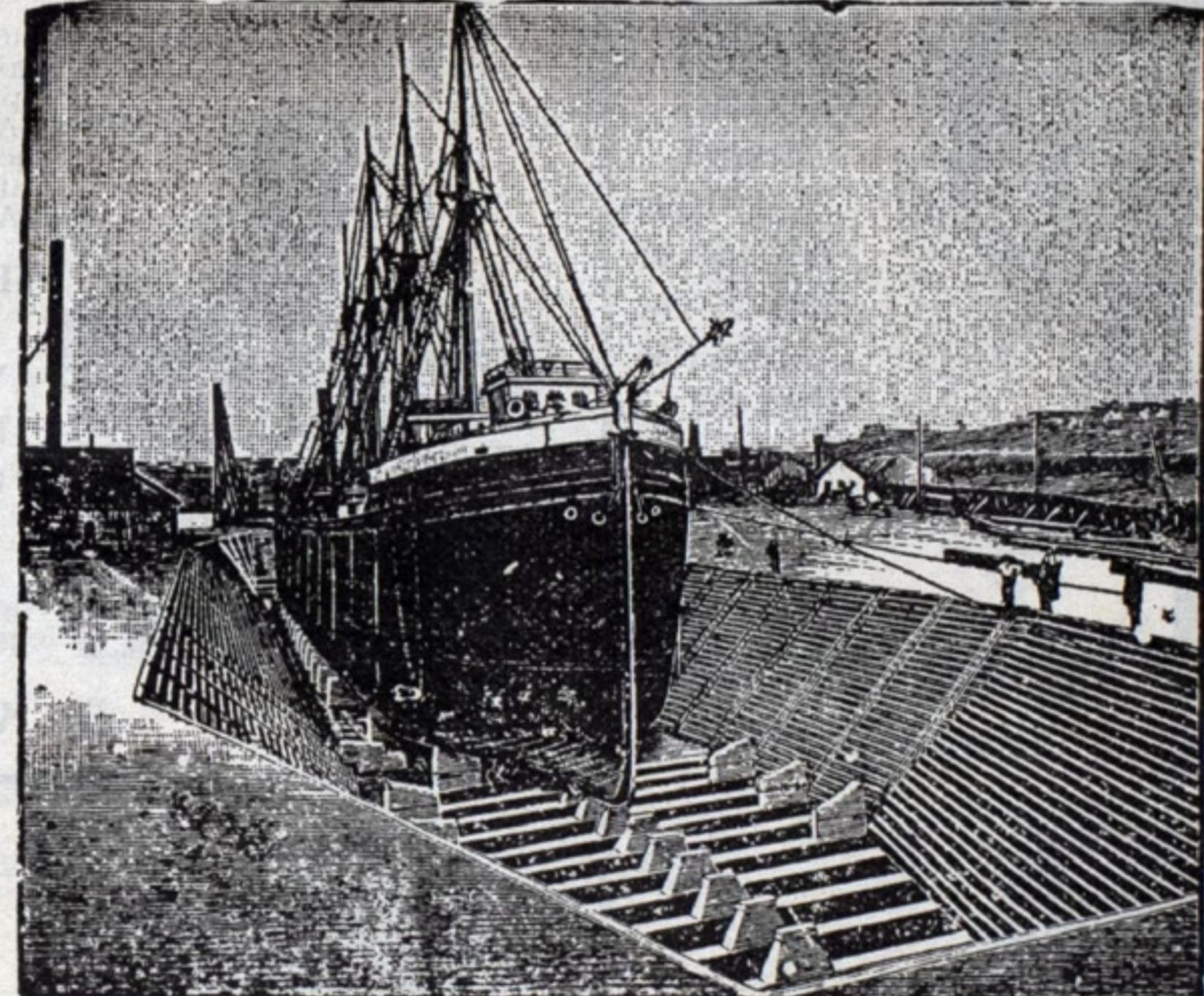
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